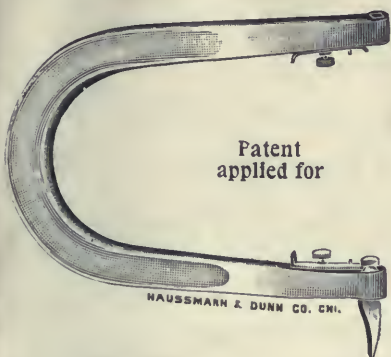


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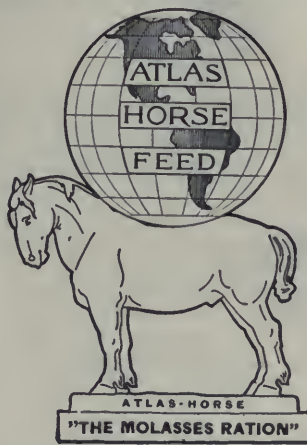
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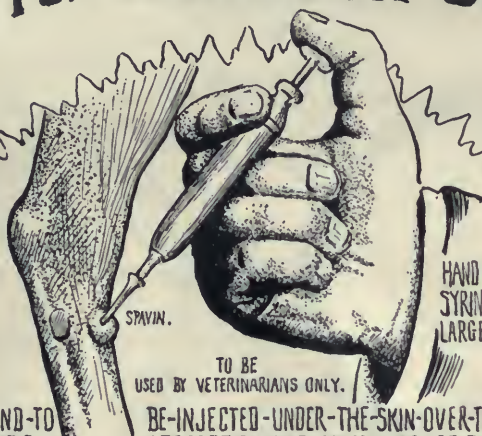
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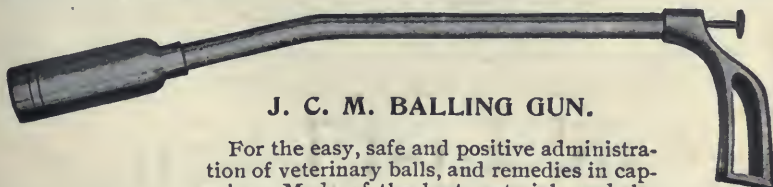
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FIG. B.

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FIG. C.



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Member Central Society of Veterinary Medicine (Paris). Honorary Fellow Royal College of Veterinary Surgeons (England). Foreign Corresponding Member Academy of Medicine Bruxelles (Belgique).

AND

Prof. ROBERT W. ELLIS, D.V.S.

WM. HERBERT LOWE, D.V.S., Associate Editor.

WITH THE COLLABORATION OF

Prof. W. J. COATES, M.D., D.V.S., New York-American Veterinary College;
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AMERICAN VETERINARY REVIEW.

APRIL, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, February 15, 1908.

HYPERÆMIA STASIS AS A THERAPEUTIC AGENT.—The numerous extracts that I find in the contemporaries that I receive will serve me in reviewing Bier's method, of which I have already spoken and that I have promised to present to our readers.

It has for object the use of hyperæmia stasis as therapeutic agent.

Hyperæmia is one of the means that organism possesses to defend itself against morbid conditions. Indeed, every time one of our organs is threatened by a pathogenous agent, for instance, a rush of blood, a true congestion, takes place in that region, and Bier claims that this natural process must be assisted, instead of trying to prevent it.

Truly speaking, a long time before Bier, hyperæmia had already been used in therapeutics. Ambrose Pare, and more recently towards the end of the last century, Dumreich, Bruns, Thomas, Helferich and others, promoted the passive hyperæmia of extremities in the treatment of fractures and to accelerate the union and formation of callus. In our days, massage, blistering, frictions, actual cauterization most probably owe their efficacy to the congestion that follows their application; but it is nevertheless certain that it is, thanks to the methodical researches, made since a long time, and specially to the results

that he has obtained in the treatment of many various diseases that Bier has the right to give his name to this method; which, it appears, is bound to become a great success.

Since 1892, when Bier published the first results he had obtained the method has assumed a very great and wide importance. In Switzerland, in Germany especially, it is now finding its application in France, and in all appearance in no long time it will receive the practical sanction announced by Prof. Kuster at the 35th Congress of the Surgical German Society, namely, that "*Bier's method was the greatest progress made by surgical therapeutics since the discovery of Lister.*"

As I have already indicated in my previous notices, Bier recognizes two kinds of hyperæmia, the active and the passive. (a) The former, due to the acceleration of the arterial circulation, may be promoted by frictions, massages, electric currents, chemical irritants, warm compresses, etc., but especially with air heated to high temperature. While moist heat cannot go beyond 50° at most, without attacking the vitality of tissues, by his experiments made on himself and on animals, Bier has found that some parts of the body (the extremities, for instance) can, without danger, and with a length of time sufficient to obtain good results, support temperature superior to 100°. Active congestion is at its height between 80° and 100°, with higher temperatures it diminishes.

(b) Passive hyperæmia is obtained in two ways, with an elastic band or with cupping glasses. The bands are made of very supple rubber of various lengths and widths (ordinarily 5 to 10 centimeters), according to the region they are to be applied. The technic is very simple, and yet it demands attention to avoid the possibility of local gangrene. They are simply rolled round the region, and after several turns sufficiently to cover it entirely, they are secured with safety pins. The only difficulty consists in the regulation of the degree of compression to be applied and which must be sufficient to promote hyperæmia, without cutting entirely the circulation. According to cases, a slight congestion must be obtained; in others, one greater, and

again in others quite a strong one. Practice will teach the surgeon. Of course, if the band is too tight it must be taken off. At any rate, a marked œdema must be obtained. The band must never be applied directly over diseased regions, but always at some distance from the inflamed tissues. The duration of the application varies. In general, between 20 and 22 hours are sufficient. Although this length of time can be divided, the band being taken off for one or two hours and applied again. How long must the treatment last? This is answered by the condition of the parts and whether the trouble is acute or chronic. In this last case the application will have to be resorted to for a long time.

When the region does not allow the use of the band, cupping can be resorted to with great advantage, and similar results obtained.

The principal effects resulting from hyperæmia are the following:

1. Analgesia. Whether hyperæmia is active or passive, the first consequence of its application is an undoubtful diminution of the pains. If this result is not obtained rapidly it is a proof that the method is badly applied. Bier admits that pain is due to the actions of nocive elements upon the extremities of the nerves, which in active hyperæmia, are rapidly carried away in the general circulation and in passive hyperæmia are diluted in the œdema which gathers in the portion submitted to the stasis.

2. Bactericidal action. This is most certain and has been demonstrated by the experiments of Notzel, who inoculated 67 rabbits with mortal cultures of bacterias of anthrax or of streptococci and then afterwards applied a stasic hyperæmia on the inoculated regions and had 51 recoveries. Even *in vitro* the blood from a compressed leg is seen to be more bactericidal than the serum obtained from normal blood. This bactericidal action is explained in various ways. For Hamburger, it is due to the great abundance of carbonic acid in the blood. For Leyden, Lazarus, Buchner, Vicherra, the bactericidal power of the blood is due specially to the greater number of leucocytes gathered in

the hyperæmic zone. For Bier, the question is more complicated and the protecting action is due partly to the above-mentioned facts, but also, no doubt, to other factors that are still unknown.

3. Resorption. Passive congestion cannot be resorted to so as to activate the resorption of exudates, but arterial hyperæmia by hot air do it powerfully. Every one knows of the old practice of the application of a ligature followed by suction of the wound, in cases of snake biting. Under the influence of the stasis of the blood, toxic elements can be destroyed, even at the point of inoculation, as Czynhoz and Donath have proved it.

4. Nutrition. Hyperæmia promotes nutrition and repair of tissues as is observed for bony growth. Hence its application to assist the formation of callus in fractures. It has also a resorbing action on blood clots, and if it modifies the general nutrition it is by giving rise to leucocytosis.

The application of this method, although finding its indications in all inflammatory diseases is, however, so far restricted to only a limited number of cases. For instances, in human medicine it has given advantageous results; in chronic articular rheumatisms, traumatic articular stiffness; in the treatment of scoliosis when combined with gymnastic exercises; in recent fractures, sprains, serious or bloody articular swellings; in neuralgia, elephantiasis, and in the treatment of varicose ulcerations. In these various affections active hyperæmia by hot air was resorted to.

Passive hyperæmia answer better specially in microbial diseases, in tubercular arthritis, in acute suppurations of the extremities, in traumas by accidents or from operations when the cicatrization is interfered with by infection, in tendonitis, or extensive traumatism, in fractures, acute arthritis, mastoiditis, acute otitis, orchitis and mammitis.

In veterinary medicine, the attempts are few. In Germany, Walther has used cupping successfully in three cases of parenchymatous mammitis in cows. Sturham has treated two cases of diffused inflammation of the extremities following bruises. Kunnemann has used the elastic band in the treatment of some

affections of the extremities in dogs. Schmidt has published several cases of recoveries of phlegmonous inflammation of tendinous sheaths, abscess of the fetlock, punctured wound of the foot, quittor, etc., etc. Parent has used it in France in a case of deep and anfractuous wound of the knee and in one of suppurating wound of the hock. Recently Lemire and Ducrotoy have recorded the results they have obtained in traumatic arthritis, in traumatic synovitis, and in one of phlebitis. These are reported in the REVIEW.

In thus passing rapidly a general review of this method, I cannot be expected to go as extensively into it as its importance deserves, and I must refer those who desire more minute information to the original German work, "Hyperæmia als Heilmittel," by Prof. Bier, to the translations that have been made of it, or to the medical journals which have spoken of it. I may, however, resume and conclude in saying: While there may be some great difficulties in applying the hyperæmic method in our medicine, there is no doubt that it is actually a therapeutic process of great importance and efficacy. It deserves to be tried in articular infections, suppurative lesions of the digital region, tendinous quittor and other similar conditions. And the excellent results obtained in many cases in human medicine will justify the hopes of great expectations in veterinary practice.

SPURIOUS OR PSEUDO GESTATION.—Classical authors on veterinary obstetrics speak, under the name of spurious, false or pseudo gestation, for a series of manifestations presented by some females, which simulate more or less normal pregnancy; manifestations, however, which are but those of special pathological productions, and among the principal of which are described the moles, the uterine cysts and hydrometra or hydrops uteri.

These peculiar conditions are also sometimes observed in the human, and in their etiology are mentioned causes which we do not find in our animals, namely, the change of life, dyspepsia and hysteria. And then again ovarian diseases, uterine tumors, physometra, abdominal plethora, obesity, etc., etc. But there is

also a peculiar form that occurs in woman, which is designated and described as pseudocyesis, and that by the authority of most writers on the subject, has not been observed in animals.

In the human, the diagnosis is in the generality, a matter of much difficulty, at least in the first months of the trouble, although even then there is something unusual in the symptoms, some essentials being wanting or also because of their appearing at one period of pregnancy when they belong to another.

Every obstetrician of some experience has no doubt met with those cases of so-called nervous gestation, and in some instances may have met with the annoyances that they gave him, until the time of the return to general health of his patient, had shown her, how great an error it was for her to insist on her being pregnant.

A case has just been published in the *Revue Gènèrale de Mèdecine Vètèrinaire* which is very interesting, and comes, I believe, to add an important fact in the history of veterinary obstetrics. A case of Pseudo Gestation, of pseudocyesis in a slut, reported by the owner. A veterinarian and an interested observer relates this valuable information. False gestation of similar nature might be detected in large animals. In them the examination would certainly reveal the correct state of affairs. But in small animals it might not be so easy a matter, and the event might bring to a careless observer lots of ridicule. Here is the case :

Mr. Augustin, an army veterinarian, has a thoroughbred fox-terrier, seven years old, quick and active, traveling 20 or 25 kilometers, following his carriage or his horse when he goes riding; she makes jumps one meter high. This is her general condition. In February, 1906, she had a litter of five healthy and well-formed pups. In July of the same year she was covered, but did not come to term and aborted. In December, 1906, she again had four handsome pups, and in the following May she became in heat, but was not served.

"Now," writes the author, "one week after being in heat, she appears dull and tired. This appearance increases gradually.

When promenading, instead of running to and fro quickly, as usual, she remains behind. Several times she refuses to go with her master when he goes riding. Her health, however, remains good, and, taking in consideration her lazy aspect and constant sleepy appearance, the owner demands to himself if, after all, and notwithstanding his careful watching of her when she was in heat, the slut may not have been covered without his knowing it? These fears are soon increased, when he sees the slut getting stout, putting on flesh and losing her fine shape, which, notwithstanding many gestations, she has kept. The owner was much perplexed and joked by his friends for not being able to say whether the dog was in pups or not. And with all the external indications, only negative results had been obtained in exploring repeatedly the abdomen, making rectal examination and auscultating. At the end of six weeks the slut had a marked pendulant abdomen; she has lost a little flesh, but seems more tired and lazy. She has the heavy and one-sided walk of pregnant females.

At seven weeks the mammæ began to swell; in their tissue are felt little hard masses; the teats are developed and from them big drops of milk are squeezed by pressure. Evidently parturition was threatening. The poor dog herself expected something of that nature, no doubt, as she remained home two days, lying down, refusing to go out, restless, scratching her bedding, laying down carefully, licking her vulva—which had remained normal—and licking also her mammæ, which are red, warm and very painful.

Great surprise! Nothing occurred! No delivery, no expulsion of dead foetus! Absolutely nothing. She had no swelling of the vulva, no vaginal discharge.

Forty-eight hours after the slut had resumed all her vivacity, she is gay and alert as before. A purge, an astringent coating over the mammæ, and after a few days nothing remained of the false alarm she had given to her owner.

The case is very instructive, but certainly while the appearances of the slut were positive, the sure and physiological signs were missing, and they are the ones to be depended upon.

Was it a case of "Nervous Gestation."

ECHINORHYNCHUS GIGAS (*Gigantorhynchus Gigas*).—The part played by Helminthes in the etiology of infectious diseases has in recent date called the attention of investigators in many laboratories. MM. Weinberg and Romanowitch among them, have already made known some of the facts which they have observed in man and in animals, showing that helminthes may act as important factors in the etiology, either in inoculating pathogeneus agents or in promoting their entrance through the intestinal walls of their hosts. They have made known lately in the Annales de l'Institut Pasteur interesting facts which relate to some lesions that they have found in swine, lesions which were due to the Echinorhynchus Gigas (*Gigantorhynchus Gigas*), of which they give a description with illustrations that I reproduce here from the journal where they have been published.

There is no doubt that this intestinal parasite, with the large number of hooks that he has on his buccal rostrum, may occasion extensive lesions of the intestine, to which they adhere very firmly. They have been mentioned as having perforated the intestinal walls and having passed in the abdominal cavity. In the present cases, they were found in the small portion of the small intestine, sometimes so closed together and in such a number that they would obstruct the intestinal canal considerably. At the point of their attachment the mucous membrane forms a little projecting elevation, sometimes red and congested. On the peritoneal surface of the small intestine they leave small nodosities, which correspond to the points where they were attached. These are generally found on the border of the intestines and sometimes on the edges of the fat of the mesentery. The writers have not found any perforation of the intestinal canal.

The histological study of the lesions is very interesting and shows a loss of substance due to the mechanical action of the

parasite, which, pushing its rostrum in the walls of the small intestine, destroys, first, the mucous membrane, penetrates then in



FIG. 1.

FIG. 2.

FIG. 3.

Fig. 1—*Echinorhynchus Gigas*, attached on the wall of the small intestine of pigs. Their number, in this case, was such that the diameter of the organ was considerably reduced. *a, a'* Deep ulcerations made by the parasite. These are surrounded by a projecting ridge.

Fig. 2—*a*. Female. *e.—b, b'* Males.

Fig. 3—Peritoneal surface of a position of the small intestine upon which are attached *Echinorhynchus Gigas*. At *a, a'*, nodosities corresponding at the points of attachment of the parasite. *b*, a nodule projecting through the fat of the mesentery.

the submucus, which is generally destroyed also all through its thickness, and finally it sometimes attacks the internal muscular

coat. But this last condition may be found and have taken place without the presence of the slightest inflammatory infiltration. At any rate, it is certain that the *Echinorhynchus Gigas* can implant itself on the intestinal mucous membrane of swine without giving rise to any other lesions than those resulting from a simple aseptic trauma. But this is not always the case, as when the contents of the nodules, formed at the point of attachment of the parasite, have been examined bacteriologically and sowed in glycosed media for aerobic and anaerobic germs, in many cases cultures of one or of several species of microbes have been obtained.

The writers have also found, in several instances, lesions of an infectious necrotic enteritis, which existed on a level with the inflammatory nodule projecting on the peritoneal surface. The conclusions presented in this very interesting article are:

"1. In attaching itself on the intestinal wall of swine, the *Echinorhynchus Gigas* can, by essentially mechanical means, destroy the mucous, sub-mucous, and even the internal muscular layers, without producing round him the slightest inflammatory lesion.

"2. In some cases this parasite inoculates, with its rostrum, in the intestinal wall pathogenic agents, which give rise either to an ordinary infectious enteritis or to an acute necrotic enteritis, which may bring on intestinal perforation.

"3. The study of the lesions due to the *Echinorhynchus Gigas* brings a new and valuable argument in favor of the action of helminthes in the etiology of some infectious lesions."

The interest that this note of MM. Weinberg and Romanowitch carries with itself certainly will not escape the attention of our readers and of pathologists, adding as it does a very valuable information concerning the action of helminthes in the pathogeny of infectious diseases.

BIBLIOGRAPHIC NOTICES.—Among the material for my bibliographic notices of this month stands, first of all, the first volume of the second edition of *Cadeac Encyclopedia*, "*Pathologie Interne*," which has just been issued by J. B. Bailliere & Sons.

It is but ten years since the first edition made its appearance, and, as it is exhausted, the second is presented with many changes or rather improvements, which increase its value as a work and will continue the successful career of the first. The plan of the work is somewhat modified, and now two distinct pathologies will be issued, namely, internal and surgical pathology. In the preface, Prof. Cadeac says that as a consequence of this subdivision, every part which truly belongs to the second will be separated from the place it occupied with the first in the former edition, and by this plan all the various chapters shall be methodically exposed and be better developed according to their importance. This new arrangement has besides allowed the introduction of new articles, which had been heretofore left aside or treated in other parts of the encyclopedia, such as the chronic indigestion of bovines, cancer of the stomach in our domestic animals, etc., etc. However, adds the able author, without denouncing any of the general views of the first edition of my internal pathology, which have been much strengthened as time went by, I have felt the necessity of presenting some details in a different manner, in touching over and rebuilding over all the chapters and giving to this new work a more didactic and no less documentary form." The preface is closed by a call which is applicable to veterinarians all over the world: "Clinicians and practitioners, publish all that experience has taught you," as by these publications only can the truth concerning diseases of animals be arrived at.

The new first volume treats successively, in the different species, of the diseases of the mouth and its annexes, then those of the pharynx, œsophagus and of the stomach; therefore, considering the varieties of stomatitis, parotiditis, maxillitis, the acute and chronic pharyngitis, the paralysies and parasites of the pharynx, œsophagitis, œsophagism, troubles of the stomach, of the rumen, the reticulum, of the omasum and finally of all the various forms of gastritis, dilatation and torsion, cancer parasites and tumors.

The volume forms a book of over 500 pages and is illustrated with 136 plates, more than double the number presented in the original work.

Among the sundries communication that I have received are: The preliminary announcement of the International Congress of Tuberculosis, to which I will have opportunity to allude again; a number of official documents relating to sanitary organization in Pennsylvania, in which very interesting facts are presented, and for which I have to thank my friend, Dr. L. Pearson; and then the McKillip Veterinary College Alumni Association Journal for January; the Chicago Veterinary College Quarterly Bulletin; and the program of the last meeting of the Ohio State Veterinary Medical Association, sent by Dr. W. H. Gribble, and in which I see announced a number of papers which, judging by their title, must be quite interesting and which I hope will find their way in our journal.

A. L.

VETERINARY CO-OPERATION APPRECIATED.

We do not believe that the veterinarian has done his whole duty to the farmer when he limits his services to the giving to his sick animals the very best possible professional treatment that he is capable of rendering. This, of course, should be appreciated at its full value, and we would not be understood as discounting in the least the necessity and importance of this class of work, but at the same time we cannot help thinking how much more the veterinarian owes to his client than the treatment of sick animals when called upon for his professional services.

The intelligent and capable veterinarian, by reason of his special training and knowledge, should be of incalculable assistance to the stockman and dairyman in advising him as to sanitary requirements in the construction of buildings and in aiding him to apply the principles of veterinary science to the breeding, development and maintenance of live stock under conditions as

would prevent, so far as possible, the occurrence of infectious and dangerous diseases to which domesticated animals are subject.

Veterinary science has to do largely with agricultural problems, and the veterinarian as well as veterinary organizations should get into closer and more helpful relations with live stock interests, particularly in the matter of the control of infectious and preventable diseases, and in the work for the improvement of live stock. Veterinarians should take part and co-operate with the farmer in his efforts to build up the live stock and dairy interests.

Where veterinarians and veterinary organizations have been careless and neglected the farmer's welfare in the respect alluded to, we see veterinary progress come to a standstill; but, on the other hand, where there is a friendly co-operation the business of the farmer has benefited and the veterinary profession has been recognized and advanced as a consequence. The veterinarian must not lose sight of the fact that there are mutual relations which he cannot afford to be careless about or neglect.

For years the REVIEW has advocated a closer and stronger bond of sympathy and confidence between the farmer and the veterinarian. Where this has existed and the veterinarian has attended and taken part in the meetings of the farmer, stockman, breeder and dairyman, the result has been most beneficial and gratifying to all concerned; but where each has worked independently the results have not been so successful or satisfactory to either.

A good illustration of what an intelligent application of veterinary science to agricultural interests will accomplish, and how much it is appreciated by stockmen and others, is found in the state of Minnesota, where the veterinarian and the farmer work hand in hand. In the March REVIEW we recorded the fact that the Minnesota State Veterinary Association had been recognized and admitted to membership in the State Agricultural Society, being given the same representation as the State Breeders' Association and other similar state organizations.

It is our pleasure this month to give space under "Society Meetings" to a number of resolutions recently adopted by the State Breeders' Association of Minnesota because they demonstrate the truth of our conviction. This association not only endorses the work of the veterinary profession of that state, but gives a full expression of a grateful appreciation of the benefits that have already been wrought in the interest of agriculture and animal husbandry in the great Northwest.

ANOTHER REASON.—The busy man stopped before an office building and leaped from his carriage. At the same moment an ambitious urchin ran forward and piped:

"Hey, mister, kin I hold yer horse?"

"No, you can't!" snapped the busy man.

"Won't charge y' much," insisted the urchin.

"I don't care about the charge," impatiently responded the man, throwing a blanket over his bony steed. "My horse will not run away."

"Gee, mister, I didn't think he'd run away!"

"No?"

"No, I thought he might fall down."—(*Harper's Monthly*.)

ODD ANIMALS IN HARNESS.—The horse must look to his laurels, as a number of odd competitors for his place as the friend of man are springing up. At Anaheim, a German settlement in Southern California, ostriches have been trained to draw light four-wheeled traps. One of these birds so harnessed has travelled a mile in three minutes, or at the rate of twenty miles an hour. The African zebra was formerly regarded as being too wild and vicious to be of use in harness. But time has changed this, and now in British East Africa any number of zebras can be purchased ready trained to bit and bridle. The zebra will be found most useful in Africa and India, as it is exceedingly strong, a fast trotter and immune from many diseases which attack horses. Perhaps the oddest animal in harness is the wild boar, which is driven by a French peasant at Montlucon. It is now three years old and is able to draw a small two-wheeled cart. As a bit is of no use, the reins are attached to the animal's eye teeth.

ORIGINAL ARTICLES.

VETERINARY MISSIONARY WORK IN THE WEST AND SOUTH.

BY MARK WHITE, V. M. D. (U. OF PA.), DENVER, COLORADO.

Read before the Colorado Veterinary Medical Association, Jan. 2, 1908.

Of all subjects that are usually discussed before veterinary associations on occasions such as this, I do not recall an article read or published on the text selected for this paper. We hear of people going to China and other heathen countries to save souls, but we never hear of veterinarians going to the West and South to save people and animals from ill-health and death. This is largely due to the fact that the people have not been educated to the knowledge that our science is in fact a science and one of good worth.

It is time, then, that the public should be taught that in order to be qualified for this work the veterinarian must first of all be well educated in one of our recognized veterinary schools; that it requires fully as much training and study to qualify in veterinary medicine as in the study of the human system; that the "old hoss doctor" no longer is a representative of the profession, and must not be taken as an example of the class, or as a type of a qualified veterinarian; that the veterinary profession has produced the greatest scientist the world has ever known; that an educated veterinarian is entitled to equal social standing with other professional men, none excepted; that it is quite as noble—and perhaps more noble—to be able to relieve the suffering dumb animal that cannot help itself than to minister to human beings; that the world needs scientific veterinarians as well as physicians to protect the lives and health of both animals and humans. Also to inform the public that the

"hoss doctor" type is non-educated, non-recognized, non-qualified, non-licensed, and well earns the title, "Quack," "Faker" and "Impostor"—or, in other words, are "undesirable citizens." Also that the non-graduate not only does not raise the standard of the veterinary profession, but that he retards greatly the advancement of our profession. That the graduated veterinarian should be legally protected so that the non-graduate is prohibited from assuming a title or degree to which he has not a just claim. That no country or municipality is well protected or safe against disease without the aid of the veterinarian. That every State should have a State Veterinarian and a corps of able assistants. That every city should have scientific veterinarians to protect the citizens from the eating of unwholesome food.

Most of you are doubtless familiar with the good and well-meaning citizen who approaches you about like this: "Are you Doc. (or Doctor) Blank?" You answer in the affirmative, and he continues:

"Do you doctor horses or cows? Do you doctor dogs? Do you know anything about cats? What will you charge to cure this spavin on my horse? Do you have a remedy for this disease?"—naming some ailment with a view to buying a bottle or box, provided he can get it for fifty cents or one dollar, never thinking that you have a charge for services.

The majority of callers to my office are not in pursuit of veterinary services, but want to purchase some specific remedy for disease. This method of dealing with skilled veterinarians is due to the fact that the public has been in the habit of dealing with the old time "hoss doctor" and so does not know how to approach the educated veterinarian, and does not view him as a professional man who is to be paid for skilled knowledge and not for medicine as if he was a dealer in patent medicines. May the time not be far distant when the public will come to know and appreciate fully all the veterinary profession has to give to humanity, through its thousand of representatives. That day is rapidly coming and it is our duty to unite and hasten its arrival.

Frequently you are introduced to a horseman as Doctor Blank, the veterinarian (sometimes your friend will make the mistake and call you Doctor Blank, the "Hoss Doctor"). The new acquaintance will then say, probably smiling in a self-satisfied way, What! a "horse doctor?" Well, well, do you know that I used to be a pretty good "hoss doctor" myself, so was my father before me. Did you ever try gunpowder for black-leg in cattle?" and so on, and so on, ending up by asking me if I had met so and so and so and so, naming every quack in town and calling them all doctors and at the same time saying that they are very good "hoss doctors," too.

Those of you who take a real pride in our profession can guess about what my feelings are about this time, for I am out of patience and wish all the "hoss doctors" were singing with the angels, or that I had not cast my lot with the veterinary profession. It is a state of affairs, don't you think? It appears as though the public cannot appreciate a veterinarian as a man who has been educated for his work, they can only see him as one practicing what he has gathered from individual experience. The public cannot seem to appreciate the fact that the educated veterinarian has acquired his veterinary knowledge from the greatest students in the world. How unreasonable it is for one to believe that a "hoss doctor," with his individual experience, can be as well qualified for his work as the veterinarian who has taken a lengthy university course and received the veterinary experience or knowledge of the entire veterinary medical world. Ridiculous, don't you think? Shall I come to the rescue of the profession and inform my new acquaintance that I do not care to know his other "hoss doctor" friends. And that I do not class myself with them professionally. That I am an educated veterinarian, having served due time at one of our universities, where I graduated, and that I hold a diploma to certify, that I am qualified to care for the diseased animal intelligently? And am I to inform him that his never-failing remedies for diseases are not of interest to me? That I do not

believe that gunpowder will cure black-leg in cattle, or that sweet oil in a horse's ear will cure fistula of the withers?

Whatever your view may be, I believe that under such circumstances it is my solemn duty to my profession to do some missionary work and endeavor to convert my new acquaintance to the fact that this is the day of the educated veterinarian.

It therefore happens that I explain our profession to him, and when I bid my new acquaintance God-speed, I comfort myself with the belief that I had converted him to a full appreciation of a veterinarian's worth to the community as a scientific man.

Such is the daily life of the Western and Southern veterinarian, but unless we all unite in such work by the time we get our clients to appreciate our profession, as we do ourselves, we will be dead or in the insane asylum.

About one year ago I made the statement through the AMERICAN VETERINARY REVIEW that it was my opinion and observation that infectious diseases are more virulent in Colorado than in any other section of America; that wounds are more readily infected and it is more difficult to ward off suppuration or pus formation here than elsewhere. Most bacteria grow more rapidly under good conditions if they are of native growth. That our rarified air is not necessarily an antiseptic, as believed by many. That ptomaines are very prevalent in this altitude. All this is, in my opinion, true, with the exception of the open range country where the sun has full play, or else on newly occupied premises.

I cannot recall to mind a single infectious disease that runs a mild course in this part of the country. As an illustration, take tetanus, a disease that is almost invariably fatal in Colorado but not so much so in the East or South. Take infectious pneumonia, and the same is true with it. Also distemper of the dog; it too runs a more variable course here, developing many complications that do not arise in the East. Then, too, as a rule, distemper is more fatal in Colorado. Ptoxin poisoning in the horse, dog and cat is not only more prevalent but fatal.

Some would say that the above statement could not be true because one can take a quarter of mutton or beef and hang it up in the Colorado sun and it will keep indefinitely. This is true of meats simply because the Colorado sun is so intensely penetrating that it readily forms a hard crust covering, which cannot be bored by either flies or bacteria. This same piece of meat would not keep if butchered in Denver and hung up in a building where sunlight could not strike it.

The Colorado sun will no doubt kill or retard bacteria growth if it can get a direct show at them. In the city or country buildings the sun cannot shine upon the bacteria, therefore cannot retard their multiplication.

One would then ask that if this be true why then is tuberculosis retarded in Colorado or high altitudes? My answer is that one coming to high altitudes infected with the Eastern or Southern grown bacilli will almost invariably improve if not entirely recover from the ravages of the infection, provided they come to our state within a reasonable time after he develops the disease.

It is a common belief and is possibly a fact that when a person develops tuberculosis in Colorado that it is more virulent than when contracted in lower altitudes. Why is this the case?

Simply because the tubercle bacilli, as grown in Colorado, mature under better conditions and are stronger. Persons coming to Colorado infected with the low altitude grown bacilli, which must be weaker, almost invariably improve. If they do not get well in the altitudes, because the low altitude grown bacilli is weaker and has not adapted itself to this altitude, therefore must multiply under retarding conditions. Again, the person coming to the high altitudes experiences a great amount of rarified air stimulation. The Colorado climate certainly is a tonic for the invalid person, giving him a greater power of bodily neutralization of infectious toxins, and through the increased health of the individual he gains the power to throw off the invading disease.

One does not need to receive an electric, stimulating treatment in Colorado, because the rarified air keeps the body charged thoroughly with electricity all the time. Incidentally let me suggest that all lazy people settle in Colorado, for our air will put such inspiration and life into the blood that they simply cannot loaf around.

It is my desire to help raise the standard of veterinary medicine in Colorado and the West. I wish to see that the people appreciate the true value of our usefulness to the commonwealth. We must secure the respect and confidence of the medical profession, for we need their co-operation (and they need ours). We must both work hand in hand for the advancement of the medical sciences. The medical profession is ready to receive us and to give us all that for which we justly deserve credit.

I am very anxious to have our office of State Veterinarianship increase in magnitude and importance. A vast amount of work should be done through this office. This association should give its entire support and assistance to our State Veterinarian. He needs and deserves the assistance and co-operation of the entire veterinary association of this state. This office must look after and branch out for new work and not trail in the old rut of the past. In order for the people to appreciate the office they must be made to understand the importance of the office. Bring this before the public in a proper way and the public will immediately give us due recognition. The salary of the State Veterinarian will be increased to a proper figure and he will be given the necessary corps of assistants.

We should see that the same is true respecting the cities of the state and that new offices are created for the veterinarians. It is our duty as veterinarians to see that Denver improves its present meat and milk supply, and that the offices are filled by veterinarians that are indorsed by this association, and not by the laity.

This association should not rest until the four appointments of meat inspectors for the city of Denver, now held by the laity, are held by qualified veterinarians. Our good mayor, as per-

haps you all know, recently appointed for Denver four meat inspectors, none of whom were veterinarians. This was a mistake and short-sighted.

I am sorry to say that our mayor does not appear to appreciate the scientific veterinarian as a necessary factor in caring for the health of the municipality.

He does not seem to appreciate that a meat inspector should be a skilled veterinarian, neither does he feel that veterinary inspection of our city's food supply should, necessarily, be looked after by the skilled veterinarian. Why is this, you ask? It is because our good mayor is skeptical when it comes to waging war against infection. He is therefore in need of veterinary missionary work, and we should not rest until he is a safe and sound convert.

We must not always construe a criticism as a "knock," for it is so oftentimes a boost. Some of you may be coming to the conclusion that I am a pretty good knocker. If so, I wish to assure you that you are misjudging me. I have found it my duty to speak against the non-educated men practicing veterinary surgery in our state, but it was distasteful to me. I have found it my duty to my profession to speak in criticising tones of some of my colleagues, which grieved me. I have also found it my lot to speak in criticism of our city and state government, and the importance of appointing a veterinarian to serve both of these. All of these criticisms made by me were not a pleasure, but it has been my solemn duty to our profession, regardless of what hard feelings they may bring about, if any.

Some say that every knock means a boost for the other fellow, but this is not always true. We must plead our rights and our cause in order that we may receive proper recognition from the people at large, and to do that we must call their attention to our usefulness.

It has been my desire and aim during the past three years to create a sentiment in Colorado whereby the present state and municipalities might improve their respective veterinary inspection laws as regards our meat and our dairy supplies, and

at the same time create more work for the veterinarians. My idea of bringing about this necessary reform or improvement or present conditions was to read two papers on this line of work before the medical associations, with the view of first having them appreciate the importance of the improvement, so that they might help convert the public to enact laws and make necessary appropriations to bring about the desired changes.

While we have changed the sentiments greatly during the past three years, at the same time there is much work yet to be done by the professions of medicine before our ideas will materialize greatly. When I first came to Colorado, if I happened to remark, as I often did, that Colorado cows were subject to tuberculosis, that many of them are infected, I would get an answer at once to the effect that the cows in Colorado never have tuberculosis and therefore it is not necessary to test and free our dairy herds of tubercular cattle. But the feeling on this question is quite different to-day. Good missionary work in the West brought about a change of views, so it does count for something, don't you think? We must keep up this missionary work in the West and South. By so doing we will, in time, have equal veterinary laws governing our part of the country with that of Eastern States.

Veterinarians should get into politics, provided we ever expect to get all that is justly due us. We must get into politics and get laws that will benefit our profession.

Take a look at Colorado and its ozone climate, and our great city of the plains—"Queen City of the Plains," or "City Beautiful," as it is so often called. This ozone climate of Colorado, which we all crave and long for when we leave the state, is daily restoring thousands of poor, suffering people to health and to a life of comfort, pleasure and usefulness, especially those who have lost their health in other states or parts of the country and come to our state to recover.

Colorado should be called the "National Health Resort."

After I have made the above observation regarding our state of Colorado and city of Denver (which is the capital of the

state) you would naturally suppose that one would, on visiting our state or city, find in preparation an ideal veterinary meat, dairy and milk system of inspection.

Since the population of the state is largely made up of people that have come here for the improvement of their health, it stands our state and city government in hand to spare no expense to put our milk and meat supplies on a high plane of wholesomeness.

It also stands our state in hand to spare no pains to increase the dairy output many times what it is at the present time. Since milk is one of the chief diets of people in ill health, the consumption of milk should be great in our state. But the consumption of milk will not be what it should until we first give to the public milk that is free from disease and sealed with the city or state seal as a guarantee of wholesomeness. The state and municipalities owe this protection to the public, and the public should demand that they get full protection by having veterinary sanitary experts in the field.

It is not generally known by the public that the meat inspectors of Denver are not veterinarians and have not been educated to pursue such work intelligently. The public should know that only the scientifically educated veterinarians are competent to inspect meat for food.

The same is true with our milk supply in Denver. It doesn't pass veterinary inspection, either. The city did not call upon the veterinary profession when it wanted a milk or dairy inspector.

Our dairy barns and herds are not inspected for sanitation and disease. These are all left to the conscience and intelligence of the dairyman; he is merely supposed not to milk a cow that is unhealthy, and is not compelled to keep his milking utensils sterilized. Some dairymen are very considerate of the public welfare and take a pride in turning out as wholesome milk as they can with the equipments at hand, but the majority are not so considerate. Our present plan of city milk inspection is

based more on the examination of the milk from a standpoint of adulteration. Denver milk is not examined from a bacteriological standpoint, which is the more important of the two. We know that water, when clean, will not kill people; we also know that infection will injure our bodies and may take life.

We must fight for the regaining of the lost confidence of the public in the use of milk. To do this the state must first furnish to the public, through its dairies, *certified pure milk*. The consumption of milk would increase 50 per cent. or more thereafter. And this being true, we would have twice as many dairy cows, twice as much milk to increase our state revenue. So you can see, from both a financial and health point of view, it is very important to our state that the people are furnished wholesome milk and meat.

What Denver and every other municipality needs and must have is a scientifically educated veterinarian as a member of its board of health, his duties being to look after the city's food supply. Such an office should be created at once, and an appointment made, regardless of politics. We should not tolerate longer the city health officials trying to do the work that we should do. At the present time the city health commissioner (Dr. Sharpley) is acting both in the capacity of veterinarian and physician, but only has the M. D. degree.

An inadequate milk and meat inspection system for a city does more harm than good, by putting the public off its guard. The public naturally supposes that the city would not tolerate anything but an up-to-date inspection system. It therefore becomes a moral obligation of the state and city governments to protect the public from buying anything but good, wholesome food, since they depend upon the law for protection.

It should be in Colorado, as it is in the state of Pennsylvania, and many other Eastern states where not a single cow is allowed to furnish milk that has not been tested for tuberculosis once a year.

It is also of extreme importance to our people who are already victims of tuberculosis not to drink milk from tubercular cows, for, in so doing they are doubtless heaping fuel upon the already raging disease.

While speaking on the subject of tuberculosis I want to say that I am surprised to think that there has not been a law enforced in Colorado and Denver requiring sanitary soda fountains. One can stand off and observe the type of patrons of our Denver soda fountains. Take one of the largest fountains, like Scholts' or Trunk's, and note the class of people that are drinking at them; you will probably see 50 per cent. or more of them are victims of tuberculosis, for they are feeling "poorly," and go to the fountains to get a milk or egg drink, or something of that sort. The glasses and spoons used by the hundreds of patrons with tuberculosis daily are not boiled or sterilized after they are used, but are rinsed or wiped in tepid water, and oftentimes in cold water, without rinsing. So you can see at a glance that within a few hours, or days at the most, one of the soda fountains will have every utensil thoroughly infected with the tubercle bacilli. So that when you buy a glass of soda you will get served with each glass the tubercle bacilli free of charge. We should have a law requiring that the soda fountains in Colorado be equipped for sterilizing the utensils, and an inspector to see that they are sterilized.

The cup system of public drinking fountains for water should be replaced by the system that is now used at the public schools, for they are ideal in construction, it being practically impossible to contract disease from them.

. I would like to go more into detail with the above subjects but I must draw my remarks to a close and take up other subjects of equal interest or importance to our profession at least. So, in conclusion, I want to speak to you regarding veterinary ethics in Colorado. I certainly hope that it is in my power to say something to improve present bad conditions. If I do not I truly hope that some of you may.

Before saying anything on this subject let me say to you, my brother colleagues, in all seriousness, that I am not desirous of making any personal attacks against any of you. What I wish to say is for the good of the profession at large, and for you individually, so I would ask that you take no individual offense. I can and could exist and get along with the prevailing bad conditions here, and so could you also.

I assure you that I have the interest of every ethical and well-meaning veterinarian of this association at heart, and they will always find me ready to help them in any way possible. I am also very anxious to see this association composed of high-class, progressive men, and, above all, that it be of material aid to individual members so that they will feel that to succeed in the practice of veterinary medicine they must be members of this association in good standing.

This association must watch the interests of its individual members with a jealous eye. I wish good-fellowship to prevail among our body. I would like to see the overflowing spirit of jealousy that now prevails among our Denver veterinarians buried so deep that it will never be dug up so long as this world lasts. It is wise and proper that we get together, work and think together as a united body. We must co-operate in everything. We must, each and every one, abide by the actions of the majority of members of this association. We should have a well-formed code of ethics to work by and one that is thoroughly understood by each member. When a member has signed the code and violates it he should answer to the board of directors; and if his actions are not excusable his name should be dropped from the roll of membership. If this association cannot have and enforce a code of ethics upon its members it had better not try to exist. The one object above all others of organizing this body was to work and protect one another, individually and collectively.

Without this fraternal spirit a veterinarian would have no inducement (only for the advancement of the profession) for becoming a member of our association.

It must be our desire to educate the public to our knowledge and usefulness so that our profession will be appreciated. Our main mission must be directed toward relegating the "quack" veterinarians to the rear, that we may take the field for ourselves. We must each, in our daily work, put on our "fighting clothes" and do our utmost to free the land of the non-educated veterinary surgeons, for they greatly retard our advancement. This country does not owe these young "quacks" the living that it once thought that it owed the old fellows.

We should meet together once or twice a year and devise further plans against the enemy. In order for us to gain the field of victory we must work hard to improve our state veterinary laws or else lose the state to the imperics.

I regret to say to this association that I am unable to see any ethics at all practiced by our Denver veterinarians, socially or professionally. It appears to me that the motto is "every veterinarian is for himself." Professional consultation is unknown among us. Such a selfish spirit must not exist if we know what is best for our own interests.

On coming to Denver to practice I made it my business to make a professional call of respect upon all the graduated and non-graduated veterinarians practicing in Denver. Out of the number only one or two received and gave me a professional welcome. They made me feel that I was treading upon their hunting ground, showing a decided spirit of professional jealousy.

We, as professional gentlemen, should receive and treat with professional courtesy every representative of the profession in recognized standing, both professionally and socially. I have been practicing in Denver over three years, and during that time only one veterinarian and his wife have paid their respects to my family by calling. There is practically no social congeniality among our Denver men.

There is no general understanding as to what should be a proper charge for this or that service. We should confine ourselves to a uniform charge, as best we can; otherwise the public

will think that we are holding it up. Some of our members are undoubtedly charging too much while others are not charging enough.

Some of the members of this association who have calls that they cannot look after are sending calls to the "quacks" in preference to the graduates or members of this association. Such actions should not be tolerated by this body. When a member receives a call that he cannot care for it is his duty to the other members to see that calls do not fall into the hands of imperics, but that a member of this association is called.

The proper way for us to handle such calls would be to tell the client, when he asks for our services, that we will send him a veterinarian to look after the case.

We should then step to the telephone and call members of this association, until we get one that will go and look after the case. In this way we would keep from the imperics many thousands of dollars worth of work annually. In fact, for a member not to adopt this method, or not to make it his duty to see that the call falls into the hands of a member of this association, should be sufficient grounds for said member to forfeit his membership.

I am pleased to see so many of you at this banquet and I sincerely hope that the addition of the same to our annual programme will add greatly to the enthusiasm of our members. It is my wish to see a membership of quality as well as quantity; a membership of congeniality, not strife; a membership of men that are not desirous of retarding, but advancing the association.

If we have only a baker's dozen of members in this association they had better be those who are of the right type. One obnoxious member will keep from this association many good men that would take an active interest and do something worth while for us all.

We must be careful what statements are made upon the floor of this association. Oftentimes newspaper reporters are present who will not appreciate a joke and may misconstrue our state-

ments as having been a part of the official proceedings of this association. You no doubt recall the matter that went into the press a few years ago which pictured us as a body of ignorant "hoss doctors." Therefore I would ask that we be careful what is said before this association at all times.

HEARTFELT expressions of regret, upon the death of Editor Bell, are contained in nearly every letter received at the REVIEW office.

A TRUTHFUL DEALER.—"But," asked the absolutely bald old party, "can I be assured that this horse is quite gentle?"

"My dear sir," replied the foxy horse dealer, "he wouldn't harm a hair of your head."—(*Philadelphia Press.*)

THE UNRAVELLED BARGAIN.—At one of the sale-yards a gentleman observed a disqualified jockey and a horse dealer haggling over the sale of a horse. Full of curiosity when the two separated, and anxious to know how two such shrewd characters had bargained, the gentleman called the jockey to him and inquired how much he had got for his animal.

The jockey opened his hand and showed a sovereign and a florin.

"But isn't that very cheap?"

"No," said the jockey; "he's dead lame."

The gentleman then sought the dealer, and said:

"So you've given 22 shillings for a lame horse?"

The dealer laid his finger on his nose and said:

"Lame! He's as sound as you are. I saw he was badly shod, and only limped in consequence."

The inquirer returned to the jockey, and reported what the dealer said. The former gave a tremendous and significant wink, and whispered:

"He's as lame as a two-legged stool. I had him badly shod on purpose to make them believe that that was the cause of his limping."

When this was communicated to the dealer he seemed for the moment taken aback, and hung his head; then, with a little sigh and a shrug of his shoulders, he said, quietly:

"Ah, well, it's all right—it was a bad sovereign."—(*Tit-Bits.*)

ARTIFICIAL IMPREGNATION OF DOMESTIC ANIMALS.

BY WM. H. GRIBBLE, D.V.S., WASHINGTON C. H., OHIO.

A Paper Presented to the Twenty-fifth Annual Session of the Ohio State Veterinary Medical Association.

There may be gentlemen in this room who have had more experience, and who know more about artificial impregnation than your humble servant; but if this be true, we most emphatically say that they have been very derelict in their duty to their colleagues, in the fact of never having mentioned the subject, while so many veterinarians, even to-day, have not the remotest idea of the operative methods, its general use, or its practical results. The many years and the hundreds of times we have performed this operation is scarcely an excuse for us being so careless as to what others know of the subject; but when you know that part of the year we see its everyday use, performed not only by ourselves but by stablemen, stallioneers and grooms, it is very natural for one thus thrown daily among it, to presume that the subject is well understood, at least by the veterinary profession.

An article by Dr. E. A. Grange in the AMERICAN VETERINARY REVIEW, for May, 1907, and then again an editorial from the pen of Prof. A. Liautard, in the November, 1907, issue of same journal, but more particularly recent conversations and communications with our veterinary friends, now leads us to know, that the subject is not nearly so well understood as we had supposed, especially among the veterinary practitioners of our cities.

Twenty years ago we personally knew absolutely nothing about real artificial impregnation; had never heard it spoken of or even hinted at, at either of the veterinary colleges of which we had the honor of being graduated; and the only thing we had ever seen in print bearing even indirectly on the subject, was a sort of theoretical article, claiming success in the impregnation

of the human female by using a sort of tube called a dilator, placed directly in the os uteri and left for a time.

In the next succeeding years, however, so-called impregnators, which were simply dilators, of every conceivable shape, could be found advertised in our stock journals.

At about this time, practically all cases of failure to breed was attributed to a contracted and rigid condition of the cervix, thus closing its opening, and preventing the passage of spermatozoa.

For this difficulty, a treatment very successful in our hands, but at that time almost universally condemned by the veterinary profession as worse than useless, was to dilate the mouth of the uterus, mechanically.

This dilating of the os uteri, or "opening up," as it is commonly called, consists simply of, just previous to service by the male of passing the hand into the vagina, fingers held cone-shape, and by gentle pressure and rotary movements, dilate the mouth of the womb sufficient to allow the hand to pass through.

Just here let us say, that this hand dilation is not practical with cows. An intensely rigid condition of the cervix seems to be perfectly normal with them; at least in the large number we have examined we have never found one in any other way, even in heifers, or regular breeders if some little time had elapsed since calving; and this rigid condition in non-breeders is such, that dilation to the size of the hand is well nigh impossible without causing an injury, or the use of a knife.

With cows we use a smooth, nickel-plated probe, round and tapering quite rapidly to a diameter of half or three-quarters of an inch.

This sized opening seems to be sufficient for the purpose.

We have proven the usefulness of these operations many times, by barren females becoming pregnant from the first service of the male following after this simple treatment, while repeated service previous had been failures.

July 12, 1887, we were consulted by C. A. Foster, M. D., in reference to a valuable mare that failed to get in foal after

repeated trials, and which on examination showed indurated cervix. He asked us: Do veterinarians operate as in human practice, by dilating the os? and on being answered in the affirmative, he requested us to take the mare twenty-six miles, "open her up," have her bred, and bring her back.

We took her next day and attempted to operate as usual, using belladonna extract, etc., but it was slow work; parts were more rigid than any we had before met; and becoming impatient, we probably used too much force, for suddenly something gave way, my hand passed into the uterus, and we were covered with blood. We surely had an excessive hæmorrhage for such a simple injury, and I was somewhat nervous, but treated the matter lightly by saying: "Oh, this is nothing unusual." Packing the vagina with tow and glycerine, stayed all night, and in the morning on removal of this tampon we found a badly torn, wide-open os uteri.

After removing the clotted blood and carefully cleansing the parts with warm carbolized water, the mare was served twice in close succession.

She exhibited some pain when we, with no other object in view, passed our hand into the vagina to see if the actions of the stallion had produced any further injury. Finding an abundance of semen, and fearing its loss on our long drive home, we placed our fingers close together, scoop shape, and carried this semen (not a difficult job) into the wide open uterus.

The mare was not served again and raised a fine colt.

For some reason, this case did not impress us as much out of the ordinary, and we almost forgot the impregnation, giving the "opening up" the credit.

In May, 1890, Squires Bros. consulted us as to treatment of a barren mare that they were very anxious to get in foal.

This mare had raised two colts, but although repeatedly served by different horses, and as often "opened up," she could not be gotten in foal again. Without making any examination at all, and presuming the trouble due to a rigid os, that con-

tracted very rapidly after being dilated, we called the owners' attention to the article we had read on human dilators, when he with the owner of the stallion offered to make it financially interesting to me to get this mare in foal if possible.

Fashioning our instrument as best we know, we had made a rough shaped, sort of spring stool dilator, to place in the os uteri to keep it open during and after service of horse, thus preventing contraction, besides giving the spermatozoa time to pass through.

When all was ready and we prepared to insert our dilator, imagine our feelings (quite a number of bystanders) to find the os dilated so large that our hand passed through without resistance; we also found that at the previous birth, the mucous membrane of the vagina had been torn at about the cervix, and this injury, in healing, had left the membrane like a curtain, directly across the opening, adhered to the sides and bottom, and had to be pressed down to allow the hand to enter the os.

Our plans had come to naught; what should we do?

Failure to conceive not due to rigid os, but undoubtedly to the inability of the semen to pass this mucus partition.

Should we, at arm's length, take scissors and remove this obstruction? No. Mare is in season and in readiness, hæmorrhage will result, and put the case off three weeks longer. A thought strikes us: Case No. 1, assist nature.

The mare is served in the usual manner, while we, taking a good-sized common spoon, bend up its sides sort of bowl shape, then inserting our hand armed with the spoon, dip semen from vagina into uterus.

No other service was required, and in due time we were paid the largest fee for the time occupied in earning, it has ever been our pleasure to receive.

On July 22, 1891, a joint session of the Ohio and Michigan State Veterinary Medical Associations convened in the city of Detroit, Mich.

Your humble servant, after reading a paper on in-breeding, spoke enthusiastically of seeming successful treatment of barren mares, and suggested certain uses and shape of impregnators.

In the discussion that followed, we found ourselves like the lone mariner; not one single veterinarian present but who opposed our views, and opposed them so strenuously that, in the published report of that meeting, we were actually ashamed to mention our remarks on the subject, as my enthusiasm of these, to me, successes, had been ruthlessly thrown down, trampled upon, and relegated to the category of chance.

Time and experiments, however, have proven that we were in the right.

Let us give you a few of the expressions of the recorded enthusiasm dampeners that were given to me at that meeting.

A prominent veterinarian of Michigan asked: "I would like to know what an impregnator was used for, anyway; there is no sense in it."

An Indiana man declared: "This opening of mares is a great humbug."

An Ohio practitioner said that he "Had tried impregnators, but found them of no use whatever."

An Ohio veterinarian "Could not see how an impregnator could be of any use whatever, unless it be in case of loose, flabby os."

Another Ohio veterinarian "Had used different kinds of impregnators, and known of others to use them, but they are the most consummate humbug ever perpetrated on horse-owners of to-day."

A Michigan man, who was chairman of the meeting, remarked that "All seem to agree that the so-called impregnators are nothing more nor less than humbugs."

From the report of the meeting, to the article by Dr. Grange in May of this year, we have no remembrance of having seen one word on the subject, either in discussions of veterinary associations, or in that ever-ready to record journal, the AMERICAN VETERINARY REVIEW.

By the term artificial impregnation, the two cases we have just reported show you that it means no theory of an artificial semen, or an artificial place for impregnation; but practical facts and results in producing impregnation by any artificial means of conveying the semen of the male to the uterus of the female, no matter whether the particular female impregnated is embraced by the male, or is not even in the immediate locality of the male.

The operation is not necessarily performed because of barrenness of the female, but far more often, in fact the major part, is to increase the utility of the male, and it is this latter reason that has given us the greater part of our experience, due, we admit, to the result of an accident to the penis of a well-known stallion.

Besides this latter, our home locality is one of the great breeding districts, the home of some very fine trotting and draft-bred stallions, having more service than they could possibly attend to were it not for artificial impregnation; so with all, the subject is one of considerable importance to us, being an ever increasing operation, more and more each year, until for the last twelve or fifteen years it has been a regular part of our professional labors; while now, during the breeding season, it is of daily occurrence and oftentimes two, three, and four times a day.

At first we kept records, more especially of females not covered by the male; but when the operation became of such frequent occurrence, the novelty wore off, records were forgotten, and we hardly gave the matter a thought.

In our experiments, we have proven beyond doubt that oftentimes the glans penis of the male enters the os uteri, is encircled by the cervix of the female, and ejaculations are directly into the uterus; but more frequently the ejaculated semen is thrown directly through the open os, and is the reason of success for the so-called dilators and the operation of "opening up," as well as the reason why females embraced by the male shortly after giving birth conceive so much easier than at any other time.

Only a small quantity of semen is necessary to produce conception, as one living spermatozoa of sufficient vitality is all that is needed.

To impregnate intelligently, as well as successfully, one must know his horse, must know the quality of the semen—in other words, know the relative number of living cells a given quantity of semen contains.

The amount of semen ejaculated varies greatly in different horses, as well as the number of spermatozoa it contains; some horses ejaculate large quantities having a small percentage of spermatozoa, while others ejaculating a much smaller quantity would contain in the aggregate fully as many or more living cells. The number of spermatozoa found in the semen of a well-kept, properly cared for stallion will, as we before stated, vary greatly, but will be in rough numbers about four thousand to the drop. This will be greatly reduced, both in number and in vitality, in the horse improperly cared for, or, more particularly, used too frequently; in fact the number and vitality depend almost entirely on the proper use or abuse of the animal. There will be more spermatozoa, and of greater vitality, from a horse used once in a day, than in three times, if the animal be used that number of times in one day.

In young stallions used too frequently, we have often found that the semen contained practically no spermatozoa, of any vitality, at all.

The exposure or non-exposure of spermatozoa to the air does not seem to produce any different effect, but exposure to heat causes rapid death. They die far more rapidly at a temperature above 100° F. than they do at a temperature below 100° F., even as low as 95° F.; in fact they live much the longer at the lower temperature.

We have found spermatozoa kept at a temperature of 105° F. to be all dead in two hours or less, while that kept at a temperature of 95° F., some were alive even after three hours. That kept at 110° F. were all dead when examined in thirty minutes, while some few were alive in that kept at 90° F.

The reason for this we have as yet been unable to determine; it is strange, especially when you remember that the temperature of vagina is 100° F.

Much of the newspaper and stable talk in reference to this subject is worse than nonsense; one stallioneer writes of having bred forty from one cover, while Dr. Lewis speaks of one man in central Iowa who claimed to have bred ninety mares in one day from one stallion.

Don't believe such stuff; unless they caught the urine and used that. Again, we hear, and read, of semen being shipped in capsules long distances and used with success. I have not, as yet, found one authenticated proof of such a fact, and will have to be shown, as our experience shows the limit of life of spermatozoa outside the animal body, under the most favorable circumstances we know of at present, to be not much, if any, over three hours.

How long they will live carried in the vagina, and on transfer to another mare be capable of conception, we have not been able to decide as yet.

We have experimented some and know that the length of life is greatly extended. One experiment nearly resulted in a lawsuit.

Mare was brought to town, bred in the usual manner, then taken home quite a distance to the farm of the owner. After standing in the stable some time, it was noticed she was wasting some. Another mare in the stable being in season, gave a good chance for an experiment. Owner was willing.

With a common one-ounce rubber syringe, nozzle removed, part of the semen was transferred to the uterus of the other mare.

Both had colts, both colts are bays, both are mares, while one dam is sorrel, the other grey, and the sire grey.

Time elapsing from breeding to transfer was several hours.

Sometimes, as in the case just mentioned, we draw the semen up into the syringe directly from the floor of the vagina; but this is very unsatisfactory, as the folds of the mucous membrane, in spite of the best of care, will suck up into the opening of syringe and plug it, and the action of air on the semen in a pan seems to have no deleterious effect.

We have caught semen in an enameled pan on a warm day in June, walked a full mile or more, carrying the pan in our hands, no artificial heat, simply the heat of the sun then impregnated with success.

We have carried the semen in screw-top bottle in the pocket of our shirt, coat and vest buttoned, drove seven miles, transferred it to the mare, and she got with foal. This was done twice, as she came in season again after the first attempt. This mare was hanging in slings, suffering from an incomplete fracture of the tibia, and knowing her uselessness for several months, was personally interested in its being a success.

The most peculiar case we ever met in this line was a large, gray Norman mare weighing over sixteen hundred pounds. She had had one or two colts and no trouble, then it seemed impossible to get her in foal any more.

Examination showed parts to be normal, but repeated impregnations were useless, and when we say repeated we mean it, for the attempts covered a series of two years, as we hated to give it up. We had about decided that she was surely barren, when one day in breeding another mare, we used the surplus in the big grey, and was surprised by her getting in foal.

For four years this mare was experimented with; direct service, or impregnation from direct service, was absolutely a waste of time, but impregnate her from service given another mare, and she was gotten in foal without trouble; in fact it was so easily done, that in only one year of the four was it necessary to do this twice. This was some years ago and the mare is gone, but were she here now, we should certainly test the vaginal discharge, a thing we then did not think of, yet often thought, that for some peculiar reason, the sperm deposited in her vagina was immediately destroyed.

We have abandoned the use of the speculum, as it is inconvenient and unnecessary.

An article extensively advertised, and sometimes used to catch the semen, is the so-called Breeders' bag. This bag is made

of very thin rubber, is slipped over the horse's penis just previous to service, then lubricated with a warm jelly of pulverized slippery elm bark. After service the bag is removed, placed in warm water, and the semen transferred from it to the mares.

Our experience condemns it, as the horse soon revolts at its use, and refuses to cover.

As to instruments necessary: we have used all sorts of tubes, springs, sizes and shapes of syringes, capsules, spoons, tumblers, cups, cans, buckets, and even the hand alone; and it makes no material difference to the success of the operation; the only difference is one of convenience.

Failures are due, largely, to improper care of utensils and instrument or disregard to temperature; too cold, but more often too hot, as one not familiar with the feel of water at 100° F. easily gets it much above.

The best, most convenient, and easiest cared for impregnator, is simply a white metal, nickel-plated syringe, about twenty-two or twenty-four inches long, and not to exceed one-half inch in diameter, and curved about three inches from a straight line; piston full length and no glass.

The more complicated the instrument the more trouble to keep clean, and cleanliness is absolutely necessary. We boil every utensil used in soda solution, besides using disinfectants, and keep syringe in the best of order.

There is nothing in the anatomy of the mare or the modus operandi of the operation to make it at all difficult. It may be best to examine the mare in advance, but this is not necessary, especially if a small-sized syringe be used. Don't be in a hurry, there is no need for it; work carefully and as rapidly as convenient, so long as the water and instruments are at the proper temperature.

Stripped of unnecessary descriptions, our mode is as follows:

Heating a quantity of water, say two or three quarts, to a temperature of about 103° F., and kept there, or nearly so.

In this water is floating an absolutely clean enameled basin.

The impregnating syringe, also filled with this hot water, is kept at about the same temperature. The mare is hobbled and the service performed in the usual manner. Just previous to the withdrawal of the penis, the enameled basin is taken from the water, and held directly under the vulva, thus catching all wasted semen, and immediately placed back in the water again. If this waste is sufficient, well and good; but if not, after waiting a few minutes for the semen to collect, the hand is inserted into vagina, and by bending the fingers, that deposited there is drawn out into our basin. Syringe is emptied of water, semen drawn into it, and again inserting our hand, the syringe is carried directly to the os, passed into the uterus as far as can conveniently be done, then emptied.

The number of mares that can be impregnated from one service simply depends on the quantity and quality, which varies greatly; we have impregnated two and three several times, and once four, all of the latter gotten in foal.

Several years ago a now widely known stallion met with an accident that produced extreme left curvature of the penis when in erection; so much curved that the glans penis can be seen to the outside of the animal's flank.

This deformity not only interferes with copulation, but with the proper ejaculation of semen. It is very difficult for the penis to enter the vulva, requiring both hands of an attendant; and then, when having entered, being so curved against the side of the vagina that the semen is not thrown forward, but left so close to the outside, that, on withdrawal of the penis or even before, nearly, if not all of semen deposited wastes out. Something had to be done. Artificial impregnation was adopted, for practically every mare brought to this horse until to-day, it is not looked upon as a trouble, but as a great saver of time and horse; for the results of last year show that while he is twenty years old, and in spite of his half-circle penis, more than eighty colts stood up and sucked and were paid for.

Whether in the show class, or by their speed performances, these hand-made colts speak for themselves; they have taken the blue at Madison Square Garden, they have made their sire, the champion sire of new performers for 1906, the champion sire of 2.20 performers for 1907; they have made him first, second, or third, as the sire of new performers for five or six years; a truly wonderful record.

Don't mistake us, and think in our enthusiasm that we wish you to believe that artificial impregnation makes handsome horses, or accelerates their speed (by no means); but we do say, and offer you the proof, that it in no way retards these desirable aims.

When again you see a colt from this sire, as many of you have, speeding round the ring at 2.06 or 7, think of this paper, and do not forget that its writer (most likely) started that colt on its journey of life through the media of a pan of warm water and a nickel-plated syringe.

CONSTIPATING EFFECT OF MORPHINE.—Magnus, investigating the constipating action of morphine, says that it is the stomach that is most affected by it. The constipating effect is not produced on the sympathetic nervous fiber. The chief action is persistent contraction of the stomach wall, in the neighborhood of the pyloric orifice. The passage of food into the duodenum is belated; the small intestine is greatly affected, colon least of all. These observations were made on cats and dogs.—(*Medical Record*.)

THE WILY OWL.—A party of horsemen were traveling along Bridge Creek, a tributary of Bad Water River, Wyoming, when their horses suddenly shied off the track at the sound of a "rattle." Search was made for the snake, but it was finally found that the sound proceeded from the burrowing owl, which lives in the burrows of the prairie dog, often, it is said, in company with the rattlesnake. Seated on a post the party heard the owl give a third rattle. And whenever they passed the spot it gave warning by its rattle, and the horses always shied off the track in alarm.—(*American Naturalist*.)

ONE PROBLEM IN MEAT HYGIENE.

BY LOUIS A. KLEIN, DEPUTY STATE VETERINARIAN OF PENNSYLVANIA.

A Paper Read at the Annual Meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 6-7, 1908.

Cleanliness in a slaughter-house is necessary to insure wholesome products. There are many things which facilitate the maintenance of cleanliness. Tight, smooth, well-drained floors, smooth walls, sufficient light and ventilation, an abundant supply of water, and proper storage of hides and bones, are all of great assistance, but none of these is as important as a simple, economical method of disposing of the blood, offal, stomach contents and other refuse. If these substances are not properly cared for and are permitted to collect about the premises, even to a small degree, conditions are established favorable to the growth of putrefactive organisms and flies and the generation of foul odors. Not only the meats and meat products prepared in such places are likely to be injuriously affected, but the tools and instruments and the butchers' clothing and hands may also be contaminated.

When the organs are affected with certain parasitic and bacterial diseases it is also important from the standpoint of public hygiene that they be properly disposed of. Dogs may become infested with tapeworms from organs infested with Echinococci, Coenuri and Cysticerci, and may in turn infest man with Echinococci and animals with Echinococci, Coenuri and Cysticerci. Organs from animals affected with tuberculosis, hog cholera and swine plague, may produce these diseases in hogs when fed to them in the raw condition. Hogs may become infested with trichina in the same way, rendering their flesh injurious to man, and dogs and rats may also become infested with this parasite in a similar manner and assist in spreading the infection. Fluke disease in man, cattle and sheep, and grub in

sheep, may be propagated by carelessness in disposing of infested organs, and until the life history of the tapeworms of cattle and sheep and nodule worm of sheep is better known, organs infested with these parasites must be regarded as dangerous. On account of the methods used in disposing of offal and refuse matter, country slaughter-houses and those on the outskirts of small towns have come under the suspicion of being centres of infection, especially when they are located along streams, as many of them are.

In the larger slaughter-houses the quantity of blood, offal and refuse matter is sufficiently large to make it profitable to install sanitary rendering tanks, dryers, etc., to render the discarded materials into saleable products, and where such a plant is in operation the commercial value of the end products is sufficient to cause everything to be carefully collected. In the cities and larger towns there is usually a rendering plant which sends wagons around to the small slaughter-houses and to the meat markets to collect this material. But in the small slaughter-houses in the country, and in small towns, the disposal of the blood, offal, etc., is one of the greatest problems connected with meat hygiene. There is not enough of the material produced to make it profitable to install one of the ordinary rendering plants to work it up into commercial products, and there is not sufficient steam or power to operate such a plant. In these establishments, therefore, it is not a question of how to make the most profit out of these substances, but how to get rid of them most economically.

A solution of the problem has been attempted in several ways. At some places everything but the edible parts and the hides has been thrown into a convenient creek. It has been the general custom to discharge the waste water and the blood also, where it was not fed to hogs, into a stream, or into a cesspool when a stream was not accessible. A few butchers have buried the solid parts in a manure heap on their premises, but the stench which permeated the air when the manure was removed was very pronounced, and when there were any near neighbors

this plan had to be abandoned. In many cases the material is buried, or it is hauled to a nearby farm where it scattered on the land and plowed under or buried in the manure pile. Some butchers who follow this plan in summer haul the offal out into a nearby woods in winter and it is devoured by dogs and crows. at one place a hole is dug in the ground and the material is thrown into this and covered with lime, and when the hole is nearly filled dirt is piled up over it and another excavation is made. There is no unpleasant odor associated with this method. Perhaps the greatest number of butchers have been feeding the offal together with the blood and stomach contents, to hogs, the blood being allowed to flow through a hole in the floor or wall, or through a trough, into a tub, and the offal, with the stomachs unopened, being thrown out the door onto the ground. There are usually several dogs to assist the hogs in devouring the material. Such places have usually been found in a filthy condition. In some cases the offal is hauled to farms and thrown on the manure pile for hogs to eat.

Under the law forbidding the contamination of water-courses, the throwing of offal into streams, as well as the discharging of waste water and blood into them, has been stopped wherever it has been discovered, and under the rules and regulations adopted by the State Live Stock Sanitary Board for the government of the Meat Hygiene Service, hogs fed on offal have been placed in quarantine to be slaughtered under the examination of an agent of the Board. The reports of the conditions found at the post-mortem examinations made on these animals up to this time furnish strong evidence of the danger attending this practice. At one place, where forty-eight hogs were being fed on offal and were quarantined, thirty-nine were slaughtered under examination and thirty-eight were affected with tuberculosis. In sixteen of the latter the disease was generalized. The other nine died and were not examined, but it would appear likely that they were also affected with the same disease. Of another lot of fourteen hogs placed in quarantine, three were tubercular and six had echinococcus cysts in the liver.

In another lot of eight, the livers of six showed echinococcus cysts. One hog which was quarantined at another place was found on post-mortem examination to be affected with generalized tuberculosis. In one lot of six hogs, one had echinococcus cysts in the liver. Another lot of six hogs was found to be free from disease when slaughtered. This is the only lot quarantined on account of being fed on offal and examined post-mortem up to this time, which has not been more or less diseased. Hog cholera and swine plague developed in a herd of twenty-three hogs which was being fed on offal. Ten died, and of the thirteen slaughtered four were condemned on account of hog cholera. From these facts it would appear that feeding hogs on slaughter-house offal not only spreads disease, but is also unprofitable. The other methods adopted in small country houses to dispose of this material are also objectionable, either on hygienic or economic grounds. Another plan is therefore necessary to meet the situation.

What is needed is some method that will enable the butcher to derive a small profit from the offal, or at least to dispose of it without expense. Such a plan, if it could be introduced at small expense, would no doubt be readily accepted, and if one could be found that would yield a small profit on the discarded material it would place the small butcher on a better basis to compete with the large packer, who derives much of his profits from the by-products of his establishment. There is no method in use now which will meet the situation, because until the Meat Hygiene Service of the State Live Stock Sanitary Board was established there was no system of meat inspection in existence that included these small country slaughter-houses. It will, therefore, be necessary to do some pioneer work along these lines.

In the sanitary rendering systems used in the larger establishments the offal is cooked in an air-tight tank or digester by steam under pressure, which melts the fat, breaks down the fat cells in the tissues, disintegrates the bones and other substances, and destroys parasites, disease germs and putrefactive organisms. The fat and the water containing gelatin rise to the top in sepa-

rate layers and are drawn off. The residue is then shut up again in the same tank, or removed to another vessel, and dried by steam. In the first operation the steam enters the interior of the tank; in the second, it goes into a jacket surrounding the tank. The vapors are drawn off by means of a vacuum. Some are condensed to liquid form and discharged into a sewer, while the non-condensable gases are carried over the furnace and burned. The principal difference between this apparatus and the common open kettle sometimes used by butchers is that the foul-smelling gases are drawn over the fire and burned. If a cover could be arranged for the kettle, with a connecting pipe to carry off the vapors in such a manner that they would be condensed to a liquid or burned, the principal objection to the use of the kettle would be removed. The material would not be subjected to as high a temperature in the kettle as in the tank, but if the boiling was continued for two and one-half hours, and if the pieces were not more than one to one and a half inches thick, the temperature would reach 185° F. within the individual pieces, and this would be sufficient to destroy the putrefactive germs, parasites and the vegetative forms of the pathogenic bacteria. The spores of anthrax, tetanus, blackleg, and malignant oedema can withstand this temperature, but animals affected with these diseases seldom or never reach slaughter-houses. After the material has been boiled sufficiently, the fat could be skimmed off and the residue dried on racks and, if necessary, subsequently ground in a mill and put in sacks. Fats of the grade secured in this way are worth about four cents a pound, and the residue, when dry and nearly odorless, is worth about one cent a pound. This material is used as a feed for hogs and poultry, and as a fertilizer.

Another plan which suggests itself is to treat the offal with some substance that would render it non-offensive while it remained about the slaughter-house and which would not destroy its value as a fertilizer, as lime does. Sulphuric acid seems to be adapted to this purpose. Being antiseptic, it would prevent putrefaction, and, while it decomposes and chars animal tissues,

it combines readily with albumen and would, therefore, bind up the nitrogen containing compound of the tissues, which is the most valuable for fertilizing purposes. The offal could be placed in barrels and treated with the acid, and later sold for fertilizer or given to any farmer who would haul it away. It is not known, however, in what dilution the acid would be effective, nor how much would be required for a given weight of offal, and until these points are determined, its availability must remain in doubt. One objection which may be made to sulphuric acid is the danger attendant upon handling it.

Ploennies formulated a method for utilizing the blood and the stomach and intestinal contents. The blood is peptonized by mixing it with the stomach contents of slaughtered hogs. It is then mixed with the contents of the stomachs of cattle and sheep, which has been previously dried, and the material obtained is a valuable feeding stuff.

Investigation along these lines is well worth our attention. Ostertag, at the conclusion of his book on meat inspection, says:

“Veterinarians will deserve the great gratitude of stock-raisers if they earnestly strive to introduce devices everywhere, but chiefly in abattoirs, whereby not only a certain destruction of whole animals and parts excluded from consumption, but also an advantageous technical utilization of this material may be accomplished. By this means a considerable portion of the national wealth will be saved instead of wasted, and the great loss which agriculture suffers through the condemnation of whole animals or parts of animals will be diminished.”

RATS GRIND OFF THEIR TEETH.—A curiously marked stone has been found at Colebrooke, Devonshire, in the middle of a wheat rick, and geologists who have seen it express the opinion that the markings on the stone were caused by rats using it to grind their teeth, which otherwise grew to an inordinate length. Some rats have been even known to starve owing to their teeth getting too long.—(*London Globe.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

PARTURIENT PARESIS IN A MARE—RECOVERY.

BY L. G. MARSHALL, V. M. D., ROME, BRADFORD CO., PENNA.

In May, 1907, I was called by Charles Easterbrook, a farmer of Rome, Bradford County, Pa., to see a brown mare, 12 years old, 16 hands high, weight 1,250 lbs., in good condition, and the mother of a colt one day old; the colt was strong and active. I saw the mare at 7 in the morning; she was down, unable to get up; the owner said she was all right the night before. Her temperature was 101, respiration quiet, owner said she was a regular breeder and was always a big milker until this time, and this time the milk dropped until three days before she had her colt, and now there was hardly any milk in the udder. After the examination of the mare, and with the history that she was a regular breeder and in the prime of life, I concluded she had "milk fever," or parturient paresis, and gave her oxygen treatment and one grain of strychnine. That is, she was treated as a cow with "milk fever." This was 8 in the morning, and the treatment was repeated at 11 and at 11.30. She then got on her feet with very little assistance, but seemed very weak at first, but after standing three minutes or so and after she was rubbed, she gained strength and acted very well, ate a quart of oats and took some water and seemed bright; so we went to dinner and left her alone. When we came out we found her down, but as we came into the box she got up as handy as any horse and walked over to the hay and started to eat, and we concluded she was out of danger. The owner has had cows with milk fever, so he knew the disease pretty well and we felt sure of the diagnosis. I went home, and telephoned him in the evening and he said the mare was all right, but in the morning he called me at 5 and said the mare was down the same as before. I saw her at 6 and started in and treated her the same as the day before, filling the udder with oxygen and giving a grain of strychnine, and obtained the same results, so I felt

confident that the treatment was right and concluded that it hadn't been carried out as long as it should have been, for the udder of a mare is small and there is not sufficient space to hold a good amount of oxygen. So on the second day I was more thorough, but it took a little longer to get her up than it did the first day. I think we had her up at one o'clock, but she gained strength very fast, and at three she looked so well I thought she was safe to leave. I telephoned in the evening, and they said she was doing fine, but wouldn't own the colt, and said they had the colt in with her, but had to keep a man there to keep her from killing the colt, and she hadn't any milk. I had already instructed them how to feed the colt on cow's milk and told them to continue feeding the colt in that way for a few days. They stayed up until midnight and turned the colt in a separate stall. The mare was in good condition when they left the stable. In the morning at 4.30 they found the mare down and unable to get up. This was the third time, and I was called at 5 and went to see her and found her much worse than at any time before. The first and second time I saw her, she could roll up on her sternum and turn her head to her side most of the time, but this time she was down on her side and unable to raise her head; temperature 100.8. It looked very doubtful as to whether we could revive her, but we gave the same treatment again and worked faithfully, although without much faith or success, from six in the morning until noon; then I sent the owner after my slings, and while he was gone I saw she was gaining a little. Her sense of feeling improved, and at three o'clock she got up by a little of my assistance and from that time improved very fast, and when the man returned with the slings she was better than she had been in three days. I stayed over night and inflated the udder with oxygen several times during the night. The mare came out all right and raised a nice colt.

I think if we had carried the treatment out longer and more thoroughly the first day she might have escaped the second attack.

FATAL IMPACTION OF THE PLACENTA IN THE RETICULUM OF A COW.

BY W. L. CLARK, D. V. M., SENECA FALLS, N. Y.

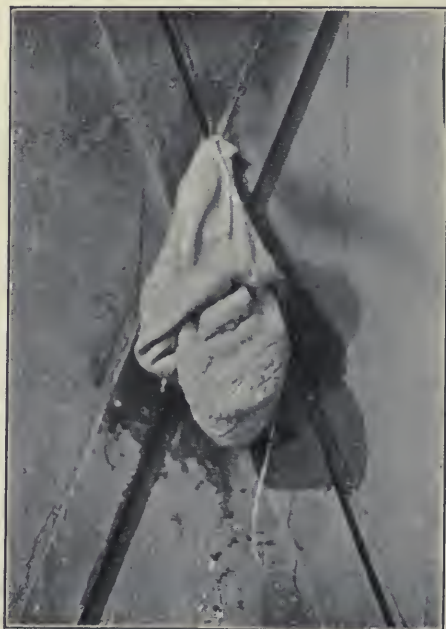
A six-year-old dairy cow had calved and, as is usual, had swallowed the after-birth. Three days later there were symp-

toms of gastro-intestinal obstruction, on which account the owner administered two pounds of Epsom salts, from which he secured no results. On the following day two more pounds of the salts were given without any material result, though a slight evacuation of the bowels was observed. The animal was found dead the next morning and a post-mortem examination revealed the after-birth firmly impacted in the reticulum wholly preventing the passage of aliment to the omasum or abomasum. The rumen was filled with food; the remainder of the digestive tract was empty.

TRAUMATIC PERICARDITIS.

By W. L. CLARK, D. V. M., SENECA FALLS, N. Y.

On February 20 I was called to see a large Holstein cow, seven years old. Upon my arrival, the animal was found lying



on the left side. There was hurried breathing and each expiration was accompanied by a moan. The brisket was swollen for

about two feet. A diagnosis of traumatic pericarditis was made. We raised the animal to its feet and she fell over dead.

On post-mortem examination, there was found a wire two and a half inches long and a horseshoe nail which had worked their way from the reticulum into the pericardium. The horseshoe nail was found between the heart and pericardium and the wire was working its way toward the heart and had nearly



penetrated it. Over the whole surface of the heart was found a fibrinous, connective tissue growth one-half an inch in thickness. The thoracic cavity was filled with a yellow fluid with a very offensive odor. On examination there was found an opening in the pericardium one and one-half by one-half inches in width, through which the fluid had escaped into the pleural cavity. The pericardium surrounding the heart was three-eighths of an inch in thickness and also of a fibrinous character.

ANOTHER CASE OF PERSISTENT LACTATION IN A MULE.

By J. F. DEVINE, D. V. S., GOSHEN, N. Y.

In the October number of the REVIEW, 1907, Dr. L. Friedhiem, of Fair Hill, S. C., tells us of a mule giving a continuous flow of milk. Since then I have had under observation a large, valuable mule that has been milking for the past year, giving from four to six quarts morning and evening; it was at first interesting, but now has become an annoyance, as the owner has appealed to me to suppress the flow. The ordinary remedies, camphorated oil, etc., have been of no avail, and if any member of the profession wishes to incur my everlasting gratitude, he may do so by suggesting an efficient remedy. I hope my request will be taken seriously and that I shall hear from some good-spirited brother.

CHEMICAL symbol for dog—Kg.

LOST MATERIAL.—Assistant—Doctor, a sponge is missing; possibly you sewed it up inside the horse.

Veterinary Surgeon—Thank you; remind me to add ten dollars to the bill for material.

IOWA STATE COLLEGE VETERINARY MEDICAL SOCIETY HOLDS ANNUAL BANQUET.—On the evening of February 28, 1908, the Veterinary Medical Society of the Iowa State College Division of Veterinary Medicine held its 4th Annual Senior Alumni Banquet at the Chamberlain Hotel, Des Moines, Iowa. Plates were laid for one hundred and ten guests, including guests of honor, alumni, faculty and students. A six course dinner was served, after which toasts were responded to as follows: "The Future of the Veterinary Division," Hon. J. B. Hungerford, President, Board of Trustees; "The Veterinarian and the Farmer," Prof. Chas. F. Curtiss, Dean, Division of Agriculture, Iowa State College; "Some Unique Experiences of a Veterinary Inspector," Dr. Chester Miller, Veterinary Inspector, Des Moines; "The Opportunity of To-day," Prof. H. E. Summers, Iowa State College; "Unity," Mr. H. E. Bemis, Class '08; "Our Chief Aim," Hon. E. E. Faville, Editor, *Successful Farming*, Des Moines; "Veterinary Opportunities," Dr. R. R. Dykstra, Iowa State College.

RECENT DATA IN VETERINARY SCIENCE.

(Continued from March REVIEW.)

BY DRs. LOUIS A. AND EDWARD MERILLAT, CHICAGO, ILL.

Operation for the Removal of Cystic Calculi in Geldings.—This operation is much more talked about than performed. Every book on veterinary surgery, and every teacher of veterinary surgery, has a more or less vivid story to tell about this picturesque procedure. The writer himself confesses the fault of having often explained the minutest details of the operation to students long before their correctness was verified by a practical experience. Searching over surgical literature, old and new, we find that the descriptions given of the method of relieving the male bladder of large concretions are very much alike. The reader is told to make an incision into the urethra at the ischial arch, pass a forceps through the opening into the bladder, grasp the stone, turn the forceps a few times to make sure that the mucous membrane is not engaged and then to draw it out without ceremony. If the stone is large, we are told to first break it into several pieces with a lithotrite. The urethral incision is left to heal up without sutures. As a rule, the operation is spoken of as difficult, unsatisfactory, dangerous, and in some cases impossible of performance, and a doubtful prognosis is generally predicted.

What are the real facts about this operation? To what extent may we transgress upon the urinary bladder of horses and what are the highest possibilities in this connection? How often has the operation really been performed? And lastly, are not many of the descriptions of the operation drawn more from the imagination than from actual experience?

In the first place urinary calculi are not very common among solipeds; their occurrence is exceptionally rare. They are much more frequent amongst dogs and cattle, in which animals they often develop in large numbers. They develop either in the pelvis of the kidney or in the bladder and only attract notice when one of them accidentally flows into the urethra and obstructs the passage of urine from the bladder. In the dog they usually lodge just behind the penal bone and in the ox at the first

part of the S-shaped curve, from which locations they can easily be removed; but in view of the fact that the bladder still harbors many more the patient is not protected against subsequent obstructions. More of them may flow into the urethra at any time and necessitate a repetition of the operation. This is especially the case with dogs.

In horses urinary calculi are much more apt to be single bodies which attract no attention until they have grown large enough to produce symptoms of a urinary derangement. Small ones may escape with the urine during micturition and attract no attention, and those of nominal size sometimes block up the urethra in the region of the ischium. The only urinary calculi of surgical interest in horses are therefore the large *cystic calculus* that interferes with the urinary function and the *urethral calculus* that obstructs the urethra. Renal calculi are seldom diagnosed and never operated against in horses.

The dearth of actual experience with operations against cystic calculi in geldings is not so remarkable when one takes into account, first, the rarity of urinary calculi in solipeds; secondly, the rarity with which they attract attention by producing urinary derangement, and, thirdly, the disinclination of practitioners to interfere when they are discovered. The facts that they are usually compatible with health, that they only occasionally interrupt the flow of urine, and that they seldom demand urgent intervention are additional reasons for our meager experience in the technique of the operation for their removal.

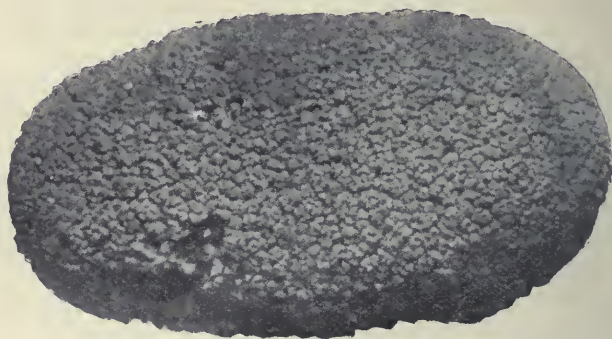
The following described case is one of exceptional importance because of the large size of the calculus as compared with the size of the horse; because the removal was effected with exceptional facility by a method not previously described; and because the operation was a perfect success in every particular.

The subject is a small bay gelding, eight years old, weighing 950 pounds, raised in Northern Illinois. For some months an unusual embarrassment of micturition was observed. The act was sometimes frequent, sometimes difficult, and sometimes the urine was tinged with blood. The general health was fair, condition of flesh good, appetite normal and general spirits perfect. The only abnormality disclosed by the preoperative examination was a marked redness of the mucous membranes and a slight elevation of the temperature, 101° Fahr. Palpation of the bladder per rectum showed that it contained a hard, movable, elongated, rounded object, about four inches long and

two inches thick, and of symmetrical profile. Squeezing it in the hand provoked tenesmus and the ejection of spurts of bloody urine. The walls of the bladder were perceptibly thickened evidently at the expense of its capacity.

After three days of careful dieting the subject was secured on the operating table and placed under profound anæsthesia with chloroform. The perineum and its environs were systematically disinfected with soap and water, mercuric chloride solution 1-500 and then dried with alcohol. A urinary catheter was passed into the bladder to facilitate the search for the urethra. The incision through the skin and the two layers of perineal fascia was made from the anus to the level of the ischial symphysis so as to expose the urethra from above instead of from behind as would be the case if the incision were made lower down. The advantage of this high incision which exposes the urethra in its horizontal position as it passes toward the bladder was proven by the comparative facility with which the calculus was subsequently removed. The urethrotomy was made in the raphe of the accelerator urinæ muscle, beginning as far forward as the urethra could be exposed and extending horizontally backward as far as the distal commissure of the external wound. The reader will note that while the incision in the outer integuments is perpendicular that in the urethra is mostly horizontal, and that its anterior end is not far from the bladder. (In case of a still larger calculus than the one in this case removed, it would be advisable to extend the incision anteriorly as far as the prostate which can be done without difficulty). When the incision was completed and the catheter removed a common obstetrical forceps, such as is used on large bitches or sows, was introduced in the bladder with the left hand as the right one in the rectum placed the calculus between its jaws. This part of the procedure was not difficult, in fact, the jaws seemed to pass around the calculus without assistance. The forceps were given one complete revolution to assure against a possible pinching up of the mucous membrane and then by gentle traction the calculus was promptly pulled backward where it could both be seen and felt. But this easy backward movement of the calculus to the level of the incision, by nothing more than very gentle traction, brought the bladder with it and wrinkled up that part of the urethra through which it must eventually pass to release it from its confined position. It was found here that the bladder can easily be pulled back far enough to bring a calculus within reach with-

out inflicting any injury whatever, and that while a horse is under profound anæsthesia the urethra is so relaxed as to admit of the passage of exceedingly large objects. Still, it was very evident after the calculus was drawn back to the incision, that considerable traction would be necessary to entirely release it, and as the surface was known to be exceedingly rough and cutting in character it was decided to pull it through by carefully peeling the urethra back as the traction was continued gentle. This peeling process was done by running the forefinger between the urethra and the calculus and thus gradually lifting the latter backward, here and there, as the former was drawn out farther and farther. When the calculus became wedged tight as its largest diameter sought passage through the incision the handle of a scalpel was used to peel the urethra back-



ward as now the urethra was too tightly stretched to admit the finger beneath it. By pulling the calculus backward and peeling the urethra forward simultaneously the release was effected in a very few minutes. The calculus which is shown in the accompanying illustration measured exactly nine centimeters in length and four and four-tenth centimeters in thickness. Its surface was exceedingly rough throughout with sharp projections that were capable of inflicting considerable injury to the mucous membrane, but on examination with the fingers after the removal it was found that very little injury had been done to its smooth surface. There was only a small abrasion superiorly which, however, bled copiously.

The urethra was closed through and through with a continuous suture of chromatinized gut along the entire extent of the incision. The skin and the two layers of fascia were brought

into neat apposition with silkworm gut, arranged in the form of ordinary interrupted sutures, from the upper commissure to within two centimeters of the lower, so as to provide for the drainage of the space intervening between the urethra and outer integuments. This space was packed with sterilized gauze, a part of which was left protruding through the drainage aperture.

Upon reviving from the anæsthetic the patient seemed none the worse from the ordeal and ate heartily as if nothing unusual had occurred. There were some feeble attempts to strain during the succeeding three days after each act of micturation, but the expected and persistent harmful straining did not occur. The gauze packing was replaced daily for ten days, at which time the wound, which at no time showed any reaction, was almost healed. On the third day a part of the urethral sutures must have loosened as a small quantity of urine was voided through the drainage aperture, but as this was not repeated subsequently the full continuity of the urethra must have been promptly re-established. The patient was ready for work in less than four weeks.

The experiences of this case have shown (1) that very large cystic calculi can be removed through the urethra; (2) that the incision in the urethra should be made as near to the bladder as the anatomical constitution of the region permits; (3) that the removal should be effected not by forcible traction but by "peeling" the urethra forward over the calculus as far as it can be drawn backward; and (4) that the incision should be sutured and not left to close spontaneously.

The patient in question had been sent to the Chicago Veterinary College by Dr. Rowan, Belvidere, Ill., and the operation was performed by Drs. Hughes, White and Merillat, October 21, 1907.

A GRIM PASTURAGE.—So careless are the Chinese of hygiene and sanitary law that cattle are allowed to graze at will in the cemetery at Hankow, a temporary burying-place where the field is strewn with coffins of the victims of the recent cholera epidemic. The Chinese do not bury their dead at once, but they leave the coffin exposed to the open air. *The Illustrated London News* of February 29 contains a large picture of this grim pasture field in the outskirts of Hankow, with the cows grazing among the coffins of persons who have died of the cholera epidemic.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

BY PROF. A. LIAUTARD, M. D., V. M.

ŒSOPHAGOTOMY IN A DOG [*James Ford*].—Old English sheep dog is choking with a bone since several days. He presents all the usual symptoms and besides a probang caused great pain in being introduced, and arrives to a foreign body at the entrance of the chest. Anyhow it is felt outside by external manipulations. Immediate operation is decided. The animal is put to sleep, the parts disinfected, and an incision made through the skin right over the obstacle. The œsophagus is open and a lumbar vertebra is extracted with a great deal of difficulty and much strength. The wound was closed with cat gut, antiseptic cleanings prescribed and milk diet. For two or three days all went well, but on the third the dog broke loose and took his share of a heavy meal without showing any bad effects from it. No more care was paid to him and he made a perfect recovery.—(*Veterinary Record*.)

A CASE OF MALFORMATION [*Alex. Taylor, M.A., M.R.C. V.S.*].—The subject was a two-year-old colt and the owner thought he was suffering with staggers, as he was running in a field where much ergot was on the grass (staggers there is one of the diseases that are supposed to be due to ergot). The history of the case was that the animal had a peculiar gait, had looked dull since two or three weeks, but that previous to that he had been apparently well. The symptoms were not those of staggers. When standing the only abnormality was a backward bending of the knee more marked on the left than on the right leg. When moving the colt showed partial paralysis of the left side, with abduction on the left fore leg and adduction in the left hind. The action gave to the hindquarters a marked swaying movement. The want of power on the hind leg was not as marked as in the fore. The colt fed well and was in good condition. No positive diagnosis was made. The animal got

two purgative balls, and tonics with alterative were prescribed. No change took place. But after some time the symptoms grew worse and finally the horse was destroyed. Autopsy: Internal organs, both abdominal and thoracic, were found normal. Brain also. After removing the fore limbs it was noticed that the first rib, or the greater part of it, on the left side was wanting, being represented by a small piece of bone at each end, joined together by a fibrous band to which the intercostal and scalenus muscles were attached. The upper piece articulated only with the first thoracic vertebra and showed a considerable range of movement. There was a considerable amount of inflammatory exudate inside the vertebral canal at the roots of the brachial plexus. No microscopic examination was made for degenerations of the nerve tracts.—(*The Veterinary Record.*)

DISEASES OF THE EYE IN ANIMALS [*Henry Gray, M.R.C.V.S.*].—This is the title of a long article presented by the author to the meeting of the Midland Co. V. M. Association, which he passed in a concise way a general review of the pathology of the eye of animals. Taking, first, the subject of the eyelids, wounds, parasites, various affections of the glandular structure, growths, and malformations are considered and followed by the diseases and many conditions of the membrana nictitans. The different forms of conjunctivitis, diseases of the cornea, of the ocular globe and its various membranes, irido-cyclitis, choroiditis, retinitis, cataract, etc., etc., are also examined by the author. Glaucoma, panophthalmitis, hydrophthalmos, mycrophthalmos, strabismus, shying, etc., all forming together the subject of a very long paper which is treated in a masterly way, is of great interest and is almost by itself a little vade mecum of ophthalmology.—(*Veterinary Record.*)

THE VICISSITUDES IN THE TREATMENT OF TETANUS [*Henry Thompson, M.R.C.V.*].—The subject of an article in which the author, after recalling the various forms of treatment that have come under his notice since he first entered the profession, some fifty years ago, and mentioning from the treatment by bleeding, doses of physic, newly-flayed sheepskin on the back of the patient, down to our days of hypodermic injections of antiserum, antitoxines, and tetanine, and having also resorted to chloroform, chloral, bromides, etc., etc., finally arrives to the relation of three cases where the results were always satisfactory.

The first case, a cart horse that had a sub-acute attack of lockjaw due to a wound in the forehead. Antiseptic dressing

of the wound with phenil water and tincture ferri (a favorite antiseptic with the author) and a coating of extract of belladonna. Then a good dose of physic, a wide, loose box, water at the disposal of the animal, hay tea, strained oatmeal, etc. The only medicine, one ounce of chloride of sodium in the water. Recovery in six weeks.

The second case was similar in nature, the result of a punctured wound of the foot. Same general treatment. This case also recovered and carried a foal the full period of gestation and foaled all right.

In the third case, also a sub-acute attack with cause unknown. Nothing was done for it except to keep the horse quiet, in the dark, with water at discretion. No medicine. Final recovery in seven weeks.

Numerous similar cases have already been recorded with similar results.—(Ed.) —(*Veterinary News*.)

FRENCH REVIEW.

BY PROF. A. LIAUTARD, M. D., V. M.

TREATMENT OF RECTAL PROLAPSUS IN DOG BY COLOPEXIA [*Mr. Douville*].—In the presence of the many failures that accompany almost every form of treatment with that disease, the writer feels that the operation of Colopexia is the only good way to relieve an animal, especially a small one. This operation consists in securing the terminal end of the colon to the abdominal wall. The abdomen is open, the colon is gently drawn forward, the prolapsus is thus reduced, and, with a few stitches passed through the middle and the external coats of the intestine and the peritoneal layer of the abdominal walls, the organ is immobilized.

A case out of many is then recorded. Six-year-old dog, quite big, has a double perineal hernia of long standing and suffers also with prolapsus of the rectum. He is constipated, of course; constantly makes violent efforts to relieve himself, and, as a consequence, all kinds of treatment has failed. At the last

attempt a foreign body had been detected in its abdomen, of which he had been relieved by injection of pilocarpine. It was a stone as big as a nut with a large stercoral mass. Finally colopexia was decided and performed. During the operation numerous tubercles were detected in the omentum and on the mesentery. The dog was kept a number of months after, having entirely recovered of his operation and having remained free of his prolapsus. When post-mortem was made a solid and perfect union was found existing at the point, where the stitches had been made.—(*Recueil de Med. Vet.*)

INJECTIONS OF ALKALOIDS IN THE TREATMENT OF INDIGESTION IN BOVINES [*Mr. Guichard*].—Three centigrams of muriate of pilocarpine, three of sulphate of eserine, four of bromhydrate of arecoline, all dissolved in five cubic centimeters of distilled water, is the prescription used by the author with great success for colics in horses, and now he recommends it also for cattle suffering with indigestion by overloaded alimentation, slight gastric disturbance, constipation, etc. The immediate effects are, however, different. While in horses the subcutaneous injection better be given before the administration of any drench, on the contrary with bovines a stimulating drink seems to aid the effects of the alkaloids.

Any how the effects differ. The reaction is much more violent and some times is such as to give some anxiety. The animal soon is covered with perspiration, breathes hard, falls down as a mass, rises suddenly, kicks his abdomen, and lays down as exhausted. These manifestations last for twenty or thirty minutes and then gases began to escape per rectum, followed by the expulsion of fœcal matters. Constipation that has resisted other means of treatment has never failed to give the writer good results. Five cubic centimeters are the dose for large animals. Four for those of middle size.—(*Repert. de Pol. Sanit. Veter.*)

TYPHLOITIS IN THE DOG [*Mr. A. Vidal*].—A Saint Germain hunting dog, aged 8 months, dies without previous morbid manifestations after having presented the following symptoms: Serous diarrhea, vomiting, pain on palpation of the abdomen, at a point situated below the cord of the flank, 3 or 4 centimeters back of the hypochondriac region. There is soon arrest of defecation, vomiting becomes muco-bilious, very rapid emaciation of the whole body. Autopsy: Digestive canal empty and normal in its characters. Only the cœcum has a lead color

and is easily torn. It contains a small quantity of soft faecal matter, but no foreign bodies or parasites. The mucous membrane is purplish and now and then ulcerated. The liver is enlarged and the abdominal and pericardial secretions rather in greater quantity.

The author asks if the symptoms and the lesions with the sudden appearance of the disease, its march and severity, do not altogether suggest the idea of a comparison with the typhilitis of man.—(*Revue Vétérinaire.*)

FOREIGN BODY IN THE BILIARY BLADDER [*J. Kowalesky*].—In the biliary bladder of an aged steer prepared at the slaughterhouse of Taschkent, Russia, the author has found an iron nail. It was ten centimeters and a half long with five millimeters in thickness. One of its extremities was larger, probably the head. Quadrangular in shape, it was crooked in its middle and rested in the biliary vesicle in a vertical position with its point on the wall. There was no lesion on the mucous membrane and the bile appeared perfectly normal. The mucous of the duodenal portion of the abomasum and the origin of the duodenum were normal and free from any lesion. The nail could have easily passed through the opening of the cystic canal and also run through the entire length of the canal.—(*Hygiène de la viande et du lait.*)

TUBERCULOUS PERICARDITIS [*Mr. E. Barrat*].—Since a few weeks this cow has lost flesh and now she refuses her food. She has two swellings of oedematous nature, one in the sub-glossal region and the other on the dew lap. The jugular veins are swollen and prominent and there is venous pulse. In auscultating, the bruits of the heart are plainly heard and their number much increased after only a few steps of walking. There is nothing wrong towards the lungs. No effusion can be detected. Breathing is relatively normal. A diagnosis of traumatic pericarditis was made, and instruction to have the animal killed, given. At the post-mortem, on opening the thoracic cavity, a tuberculous mass was found adhering to the external surface of the pericardium and also on the left pleura only. This mass is 20 centim. thick in its front part, 15 on the left side and 10 on the right. The heart is pushed backwards and is oblique from forwards backwards and from upwards downwards. The internal face of the pericardium is perfectly smooth. There is endocarditis. Three or four centers of tuberculosis exist in the lungs. One bronchial gland is also tuberculous. The tuber-

culous mass weighed 14 kilogs. The diagnosis was rendered specially difficult. As there was considerable fever, the use of tuberculin was unnecessary.—(*Rev. Gener. de Med. Veter.*)

SUDDEN DEATH BY ASPHYXIA DUE TO THE ENTRANCE OF SAND INTO THE LUNGS [*Mr. Inguineau*].—During military manœuvres, the crossing of a ford gave an opportunity to have the horses quench their thirst. One of them, irritated because of being kept back for a while, drank when his turn arrived with such avidity that the man who was riding him was unable to make him stop or raise his head from the water for one moment. A few seconds after he fell down and died. At the post-mortem, the lungs were found three times their normal size and excessively congested. Sections made through them showed that the bronchia and their subdivisions were filled with sand and gravel. At three places in the right lung there were hemorrhagic spots made by the sharp edges of some little stones. All the organs were found healthy. It was supposed that resisting the efforts of the rider to draw him out of the water, the horse plunged his head to the bottom of the ford and absorbed per nostrils water, sand and gravel.—(*Rec. Hygie. Mede. Veterin. Militaire, R. G. M. V.*)

PARACENTHESIS OF SYNOVIAL CAVITIES AND LOCAL INJECTIONS OF SALICYLATE OF SODA IN THE TREATMENT OF RHEUMATOID SYNOVITIS [*Mr. Chenot*].—After careful aseptic preparations, the author introduced a small trocar through the most prominent point of a tendinous or articular synovitis. After removal of the contents, the cavity was washed with warm water (40°), distilled twice, filtrated and then injected with the same trocar left in place. The wound was closed with saloled colodion. In two cases this washing, with more or less compressive wadding dressing and kept from 3 to 5 weeks, has been sufficient to obtain a radical recovery. These synovitis were existing between 10 and 13 months.

Encouraged by this result, the author tried local injections of salicylate of soda, at 1/5 and then 1/10, to treat various synovitis of rheumatoid nature. The first was an infectious synovitis of the fetlock of 18 months' standing, giving rise to severe lameness even in walking. 50 centigramms of salicylate dissolved in 7½ gramms of warm water, redistilled and filtrated, were injected. Thick wadding dressing applied. Great pain at first. Lameness entirely gone the third day. Fifteen days later lameness has returned. New injection of 1 gramm of

salicylate in 10 of water. This was again followed with great pain at first, but after thirty-six hours it passed off and radical and permanent recovery was the result. The author has resorted to this same treatment in three other cases.—(*Rec. Hygie. Medec. Veterin. Militaire, R. G. M. V.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

TUBULAR EPITHELIOMA OF THE STOMACH AND OF THE INTESTINES IN A HEN [*P. Zannini*].—This condition was observed in a hen that had died from starvation. Since some time the owner had noticed that the fowl, although she showed good appetite, was gradually losing flesh. She was less active, weak, and one day appeared suffering with severe dyspnea and having the throat much swollen and hard. Death took place very rapidly. At the autopsy the glandular stomach and the gizzard were found the seat of large neoplasms, which extended into the intestines. The gastric ventricle being changed into a large mass, as big as a mandarine orange, very hard, with bosselated surface and surrounded with many others of various sizes. These neoplasms invaded the cavities of the organs and prevented the passage of the food from the throat down the œsophagus. The growth that existed in the free portion of the intestine was as big as a hen's egg and was firmly adherent to the terminal portion of the organ. The microscopic examination of various sections of these growths revealed their nature of cylindrical tubular epithelioma. It appears that veterinary literature on this disease shows that it is not frequently observed among fowls.—(*La Clinica Veterin.*)

INTOXICATION OF CATTLE DUE TO EATING SINAPIS NIGRA [*Dr. Borella Alele*].—This is the relation of several observations made at a time when on account of general long, dry season the recolt of hay had been poor and cattle received a poorer quality of forage. There are three observations relating to what took place in connection with such feeding, and in which

deaths occurred in comparatively large number, all cattle that had partaken of the plant were more or less sick. In one of the three observations where six steers eat mustard two died. In another, three animals succumbed out of seventy having been sick, and in a third three also died out of a herd of forty cows. During the time that the animals were sick they had colics, refusing food and drink, showing also first signs of indigestion and later on indications of gastro-enteritis. At the post-mortems that were made the liver was found indurated and pale in color. The spleen and kidneys seemed rather normal, the various compartments of the stomach contained greenish mass, pultaceous in aspect and mixed with mucosities. In one of them between 30 and 35 litres of liquid were found in the abdominal cavity. The animals that were sick were treated principally with milk diet only and recovered.—(*La Clin. Veterin.*)

UPON THE TREATMENT OF SPAVIN [*Dr. Gino Giovanelli*].—

For the writer of all the forms of treatment that are recommended against the tarso-metatarsal osteo-arthritis, none has proved really efficacious, whether it be by blistering, firing, section of the tendon of the flexor metatarsi muscle or the operation of Dickerhoff. This last indeed has given in his hands the most disastrous results in one case where he resorted to it. On this account Dr. G. G. uses now only a method which has proved most satisfactory. Out of 36 cases, recovery, that is, the removal of the lameness, took place in 20; in 6 the results were negative, and 4 cases were lost sight of after treatment being applied. This consists in the division of the internal saphena nerve in the interior third of its course and more specially where the two roots of the internal saphena vein are united in one branch on the internal face of the tibia and before it reaches the thigh. At this point the internal saphena nerve, after being divided into two branches, running one in front and the other behind the vein, accompany it as far as the anterior face of the hock. Those nerves are readily exposed by a simple incision four or five centimeters long made through the skin only. When exposed, they are easily separated from the vein and divided. Simple suture is followed by first intention cicatrization. A few points of deep, penetrating firing complete the treatment.—(*Il Nuovo Ercolani*.)

ASCITIS IN A DOG [*Dr. Giuseppe Sivieri*].—A six-year-old watch dog had slight tympanitis, due to simple gastro-enteritis, which was improved by proper treatment. After a short time

the dog was again sick with severe constipation. Podophilline was prescribed and given in milk. Some improvement was manifested, but after a few days the writer was called again because the dog was getting a large belly. Indeed, he was sick. His respiration was difficult and frequent, he was unable to lay down, his abdomen was enlarged and pendulous and fluid was readily detected by manipulation and by percussion. Ascitis was evidently present. An exploring needle was plunged into the abdomen and 10 litres of perfect, clear fluid were removed. The treatment by omentopexia was suggested, but objected to by the owner, and, instead, one prescribed which was thought might prove only palliative. This consisted in the administration of Iodide of Sodium in gradually increasing doses with paracentesis, whenever it seemed necessary. This operation was performed eight times; at first about every eleventh day; then further apart, and finally after five months of attendance, the last puncture leaving no more fluid to escape, the treatment was stopped. Since that day the dog, which had supported the treatment very bravely, had become reconciled with the punctures to the point of laying down of himself when the doctor came to operate, soon began to resume his general aspect and grew fat.—(*Il Nuovo Ercolani*.)

OBSTRUCTION OF THE INTESTINES IN A STEER [*Dr. Giuseppe Sivieri*].—A very handsome steer, prepared for an exhibition of fat animals, presented symptoms of indigestion for which purgative and oily rectal injections were prescribed. Three days later the writer was called in a hurry and found the animal much depressed, with a temperature of 36° only. Rectal examination revealed nothing abnormal, the last portion of the intestine being found empty. Recalling previous similar cases, the author made a diagnosis of intestinal obstruction and advised immediate slaughter which was carried out at once. At the dressing of the carcass extensive peritonitis was exposed. The small intestine was the seat of a longitudinal laceration measuring four centimeters, through which a fermenting small potato had made its way into the abdominal cavity and given rise to the peritonitis. It seems that in the diet given to animals which are fattened for market purpose it is not uncommon to see them receive in their ration, potatoes mixed with other farinaceous food.—(*Il Nuovo Ercolani*.)

ENDOMETRITIS AND PYLONEPHRITIS IN A MILCH COW [*Dr. Giuseppe Sivieri*].—A cow of great value was recently bought,

and refused her food. A few days later she aborted a three months' foetus. Treated with disinfecting irrigations, she soon returned to her normal health, but with a capricious appetite. Coming in season, she was taken to the bull and covered. Her general condition remained about the same, but two months later she again aborted. Her symptoms, however, this time were more serious. She had violent colics and high fever. After a few days she had vaginal discharge, muco-purulent and very offensive. Diagnosis of endometritis was made. Placed under treatment, tonics and antiseptics. The cow improved and soon again she became in heat, but, fearing another abortion, advice was given to have her slaughtered, to which, on account of her great value, the owner objected. A consultation was held. Same diagnosis made and same treatment was prescribed with some little changes in the use of the antiseptic already employed, but, notwithstanding great care and attention, the animal had to be sold to the butcher. Besides lesions of endometritis that were found, the right kidney proved to be considerably enlarged. In cutting through it a large collection of pus was discovered in the pelvis of the organ with extensive alteration in the parenchymatous structure. Although this last condition had escaped the attention at the time the cow was examined first, it is most likely probable that the pyelonephritis was a secondary infectious process due to the endometritis.—(*Il Nuovo Ercolani*.)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

THE ETIOLOGY AND PATHOGENESIS OF INDIGESTION WITH COLICKY SYMPTOMS [*N. C. Cuny*].—Although indigestion of the stomach and intestines has been described and classified to some extent, Cuny maintains that it is impossible in the present status of science to designate any particular cause for these diseases. The stomach and intestines are intimately connected with one another, supplied by the same system of nerves and anatomically and physiologically so closely associated that both may be influenced by the same cause. This intimate relationship led

Cuny to believe that in all cases of indigestion be it directly or reflex the stomach and intestines are affected during the course of the disease. The clinical distinction depends entirely upon the time at which the malady set in, furthermore upon the various stages of tympany and the quality of the feed at hand. Thus the disease exhibits peculiar characteristics which alone justify its clinical distinction as we have already mentioned. In fact, the etiology remains a unity even when we have to deal with certain organic and hypothetical influences, such as the partial obstruction of any part of the intestinal tract. We cannot understand how the stomach can perform its functions with precision when any part of the intestines is disordered, partly or wholly paralyzed. This functional independence surely does not exist during the whole course of the disease, it can only be transitory, and we conclude from this, apart from the presence of certain symptoms, that indigestion is uniform in its causes as well as in its effects.

What are these causes? This question cannot be answered briefly; their number is legion. We will attempt to enumerate the principal ones, and for the purpose of facilitating their study we arrange them in the following synoptical order: Digestion is the result of a series of mechanical, physical and chemical processes which take place in the interior of the organism. These phenomena whose course is dependent on exterior influences have for their purpose the conversion of food, that is to say, as a rule, insoluble substances into absorbable nutritive substances. There are, therefore, two groups of causes: one is of exterior origin, the other interior. Under the first, we consider those which result from weather, feed and work. Under the second, the individual, organic, toxic, and microbic.

Temperature, great heat influences the distribution of the blood, makes the stomach anæmic, decreases the secretions, produces atony of the digestive tract and is a frequent cause of indigestion (Cadèac). Numerous observations support this view. Chauveau is of the opinion that among the numerous causes of colic one deserves especial mention, namely, the influence of temperature. In the large stables we often note numerous cases of colics which are associated with oppressive sultriness and excessive humid temperatures. He also believes that atmospheric conditions are a prime factor in the origin of colics. Alex holds the same opinion and further maintains that the temperature of the drinking water is one of the chief sources

of colic. As a result of these combined opinions with the exterior temperature, the water in the winter being too cold and in the summer too warm, all suitable conditions to exert a harmful influence on the peristaltic action of the intestinal canal through its nerve supply. Also intense heat accompanied by high electric tension. During the summer the number of colic cases increase. Lavalard lays particular stress upon the influence of the season. He says that the mortality increases from January to May, remains very high during the summer and sometimes during September and October. There is a universal agreement on these points. From this we may infer that indigestion is more frequent and severe in the summer and during sultry weather. Still, we cannot deny that in very cold weather colics are not infrequent. They may become a cause in a reflex manner by interrupting the physiological functions of the stomach and intestinal canal.

Feeding.—We have to distinguish between solid foodstuffs and liquids. Drinking water too hot or too cold produces the same deleterious effect as the atmosphere. The danger from fluids at extreme temperatures is much greater when horses are less frequently watered (Alex). Particularly in the case of army horses this is a very frequent cause (the writer). Jacoulet refers to the irregularities practiced in the French army regarding the watering of horses. The animals are frequently watered on empty stomachs and in many cases rarely watered. We should insist on having a continuous supply of water in stables so arranged that horses could drink *ad libitum*. The writer desires to add, that recently in the larger private stables the introduction of automatic watering contrivances have been installed and are becoming more common. Formerly great difficulty was experienced in the construction of an automatic watering apparatus in order to be durable and work satisfactorily at all times. At present this is no longer the case. The watering apparatus which was invented by J. Richter, of Leissnig, in Sa., worked admirably. The device was installed temporarily for a test in a few military stables and pronounced most satisfactory. Nevertheless, its adoption in such stables met with stern opposition from military sources as will be seen from the contents of two letters received by the above firm. They read as follows: Dresden-n-den 3. Mai, 1906. Your automatic watering device which was installed in the stables of the 2d Bat., 4th Field Artillery, Reg. No. 48, in Dresden, proved practical and

satisfactory. Though fully recognizing its many advantages, the military authorities are opposed to its use in army stables on the ground that while it has a benign influence on the general health of the horse, it produces bad habits, in fact, pampers the cavalry horse, those habits being readily perceptible in the field. The minister of war desires to convey to you his recognition of the merits of the automatic watering device invented by you. The same is probably more adaptable to private rather than military stables.—War Department. Berlin, W. 66 den 21. Feb., 1906. In reply to your inquiry of the 18th Jan., 1906. The test automatic watering device installed in the stables of the 3d Squad, 1st Dragoon Guards Reg., Great Britain, operated admirably. The minor disorders attending its use at first were rapidly and easily remedied. While it is admitted that the apparatus in question fulfilled its purpose by naturally and agreeably allaying the thirst, consequently exerting a salutary influence on the general health of the horse. For private stables this device might be of the greatest service. But its introduction in army stables cannot be considered, as stringent military rules prohibit its use.—War Dept.

Morizot takes up this question more minutely. He states that during the monoeuvres he had treated horses affected with colics which seemed to recover immediately when given fresh water to drink. In Germany they adhere to the opposite opinion, that horses suffering from colics as a rule refuse to drink, and that when they show an inclination for water it is an unmistakable sign of recovery (Goldbeck). Morizot also states that the number of colic cases are more frequent on Sunday and from Sunday night to Monday, because the animals are not sufficiently watered, or perhaps not at all. Rousseau likewise criticizes this method of watering; he maintains that in order to avoid colics the horse must be watered frequently and especially avoided when the stomach is empty. Still another source of colic is the bad quality of the water. Aside from these waters which contain pathogenic organisms and direct poisons, many waters through their chemical composition act injuriously on the stomach. Calcareous waters frequently interrupt digestion by neutralizing the hydrochloric acid secreted by the stomach. Food is an important factor in these questions. Many horses show symptoms of colic after eating indigestible substances as earth and sand. Others again get nutritious foods, but as a consequence of overeating are exposed to the same danger. In the

case of millers' horses, which, as a rule, are given too much bran, sometimes this feed produces calculi which causes indigestion. Likewise food of poor quality plays a role, although this is not apparent in all cases. No one will question the injurious effect of dusty hay, and hay which has been badly cured, also that which contains much woody fibre and hay whose botanical composition leaves much to be desired. Caulton Reek's article, "Tympanites of the Stomach of the Horse: Diagnosis and Treatment," *The Vet. Record*, 1903, page 555, accuses certain foodstuffs of having a similar action as is frequent in oxen. According to Reek, indigestion of the stomach with tympanites arises very frequently in the horse after eating young and juicy plants such as clover, corn in the stalk, Lucerne, vetches, also cooked and mashed foods which had undergone fermentation when moistened possess the same peculiarities. The manner of feeding is the most frequent cause of indigestion. Another cause, Alex says, must be sought for in the absolute quantity and in the sudden change to an excessive quantity rather than in the nature and kind of feed. In fact, we see frequently in the country where young horses which are overfed show severe stomach and intestinal diseases, and although it is difficult and we might say impossible to bring about artificial indigestion in those horses which on purpose are given dry feed in excess, it is nevertheless a fact that exceeding the feed ration produces serious results. Lavelard blames particularly the increased rations in the case of tired and convalescing horses. Jacoulet is of the same opinion. Further, he condemns the economy practiced in feeding during the greater part of the year, and at the time of manoeuvring feed is distributed in a disproportionate manner to the animals (very appropriate, Goldbeck). The cribber and windsucker frequently present intestinal disturbances as a result of the great distention of the intestinal canal; it can neither contract nor secrete its digestive juices with its accustomed energy (Cadéac).

Influence of Work.—Here the greatest antithesis leads to the same result. Apart from the injurious role which work accomplishes directly after feeding (Alex), we can say that idleness and overexertion affect the functions of the digestive tract in the same manner. Videlier has recently called attention to this point. According to him a large number of intestinal disturbances are caused by lack of work and unsanitary conditions during Sunday. He is also of opinion that work exercises a benign influence on the digestive tract and that rest alone in

the case of troop horses explains the large number of colic cases which are noticed during the time between the discharge of the old troopers and the arrival of the recruits. In order to avoid this cause, the horse should never be allowed to remain at rest in the stall one whole day. At least 2 hours' exercise should be given daily. That severe exertion plays an important part is well known. According to Lavelard, it is one of the chief causes of colic; it creates nervous exhaustion, the result of which is paresis, or total paralysis of a part or the whole of the intestinal canal.

Individual influences.—These are the most important, but unfortunately we do not wholly understand their mechanism. There are individuals, some of which even under the same environments are predisposed to indigestion, while others are insusceptible. There are even animals which under the most suitable hygienic conditions are prone to indigestion (Benjamin). In order to explain this fact, we must use the vague expression, "Predisposition." We must not forget that with age its influence increases.

Functional and organic influences.—Greediness hinders many animals from digesting their food properly. These animals frequently show symptoms of indigestion. The same condition is observed in horses with irregular teeth. Beutel frequently expressed his opinion on this point by means of numerous statistics at hand. He proved that bad and irregular teeth are a prominent factor in the etiology of colics. We can also refer to the success which was attained in the prophylaxis of colics by the systematic treatment of the teeth. Old horses are more subject to indigestion because the stomach and intestines are debilitated and consequently do not contract sufficiently to accomplish the mixing of the food. In addition to this, in age the salivary secretions are diminished and under those combined circumstances the food accumulates in the torpid alimentary canal (Cadéac).

Obstructions, which have their seat in the intestinal tract, such as constrictions, tumors and so on, produce a disturbance of the functions, primarily resulting in indigestion. In connection with this, we must cite the case of aneurisms (verminous) which, when frequent, produce circulatory disturbances. Thrombi obstruct the flow of nutritive blood to certain parts of the intestinal tract, hence these parts become paralyzed and are

the seat of stasis (Cadèac). As a result of this, Mègnin explains the frequency of intestinal disorders in the cavalry horse.

Toxic and Microbic influences.—Of all the new theories advanced these alone are of particular interest, while all the others have been known for some time. Darras has established the following theories: That colics arise from the absorption of those poisons which the liver cannot destroy. He implies that at most of the autopsies held on horses which died from colics the lesions found were mostly of a secondary nature. He found that in all cases the liver was friable and degenerated. The excessive muscular exertions act directly upon the liver, through its glyco-genic function, its antitoxic power is lowered, the toxins penetrate the gland, reach the central nervous system and produce a digestive atony, and, as a consequence, indigestion. He thought it probable that the colics of the horse are a more or less severe infection of the organism by the poisons of the intestinal canal and that this infection is favored by the diseased condition of the liver which lowers its functional activity and particularly its antitoxic action. Benjamin maintains that this theory is well worthy of consideration. He recommends that from this date onward a careful examination be made of the liver at autopsies on horses which have died from colics. In practice, owing to the difficulty in making a careful autopsy, as a general rule, we are satisfied to look for those causes which have produced death. Yet we trouble ourselves very little concerning the various pathological changes which are still to be found and which may lead to the suspicion of the existence of a toxic or infectious disease. There remains for us to investigate one final theory which bears a similarity to the preceding and to accept a microbic element as the genesis of indigestion. Dupas had observed colics in horses living in the open which had assumed an infectious aspect. He maintains that this supports the hypothesis that bacteria are the cause of intestinal disturbances. Still, before this publication, Dassonville investigated the cause of death in certain cases in ruptures of the stomach and intestines. According to his opinion, the cause of this was due to two different effects, one an internal centrifugal force, the other an external centropetal force of the organism itself. The former is produced in most cases by a collection of gas in the intestinal tube. The gas arises from the fermentation of the food, that is to say, from the influences of living elements acting upon a fermentable mess. We then from necessity infer

that microbes are the chief causes of intestinal disorders. Dasonville had not been satisfied with thoretic deductions. He aimed to experiment in vitrio with the flora of the digestive canal and to determine which species were at fault. He found a vibron which liquefied gelatine, developed a great deal of hydrogen and methane. The point in question was, whether or not he had discovered the microbe of indigestion. We doubt it very much, as the author could not produce the disease with the aid of his cultures, which should have been necessary to support his theory. Besides the presence of bacteria in the intestinal canal, either those which liquefy gelatine, or those that do not is not at all surprising. These microbes are always present because they form gas during the presence of digestion. Their absence would be much more surprising and certainly should claim our immediate attention, yet we know that digestion is aided by the presence of micro-organisms, in which one directly antagonizes the other and effects incessant transformations of the digestive contents. The absence of these bacteria may be rather a source of danger and even completely interrupt the normal evolution of this physiological metomorphosis.

Pathogenesis.—This question is easily presented, but difficult and perhaps not at all solvable. The microbic influence would necessitate a special pathogenesis. We agree concerning the effect of a disturbance in the phenomena of secretion and motive power. Its retardation or suppression in each case effects a change in the mechanism of the stomach and intestines. The functions are impaired, the normal regularity suppressed. There must exist between both a certain connection. This connection takes place through the nervous system. All influences which produces these transitory disturbances may become a cause of the interruption of the functions of the stomach and intestines. As yet we lack the necessary experimental proofs for those ideas.—[*Deutsche Tierartz Wochenschrift*, No. 40.]

THE KANSAS CITY VETERINARY COLLEGE.—This excellent school has just completed the most successful year of its history. The commencement exercises were held in the New Casino on Thursday evening, March 26th, where the last sessions of the A. V. M. A. were held. The degree of D. V. S. was conferred upon one hundred and eleven gentlemen, two of whom were post-graduates.

OBITUARY.

ROSCOE R. BELL, D. V. S.

Resolutions adopted by the Illinois State Veterinary
Medical Association.

Whereas, It has seemed best to the ALL-WISE CREATOR to permit one of the best beloved veterinarians of this country to be removed from our midst, by the silent hand of death; and

Whereas, We recognized in our brother the sterling worth of a man who was energetic and untiring in his efforts to do his duty, and especially to advance the cause of Veterinary Science not only in America but for all countries; and,

Whereas, His efforts, as the editor of the leading veterinary journal of the Western Hemisphere, he had been largely instrumental, if not responsible, for making it at least the equal of any other such publication, and through its monthly visits we have learned of the scope of his unbiased intellect. Even those brother practitioners of Illinois, having little or no acquaintance personally with him, have both consciously and unconsciously benefited incalculably by his editorial and journalistic ability; and,

Whereas, We of the Middle West feel keenly the loss of this brother veterinarian, educator, writer and friend, Dr. Roscoe R. Bell, therefore, be it

Resolved, That we express our appreciation of this most excellent man and fellow-practitioner in this journal though in a faint way. The profession has lost more than a friend. It has suffered an irreparable loss in the death of this conscientious educator and untiring, genial and brilliant collaborator in veterinary medical research, and be it further

Resolved, That we extend our heartfelt sympathy to the family of the deceased. Realizing keenly the loss of his friendship and his help at this distant point, from his daily activities, we can faintly compute the actual deprivation to those not only in his own family, but to that large circle of friends and co-workers who have during many years of intimate relationship, professionally and otherwise, learned to love, respect and depend upon him the more for his untiring devotion to the work

for which he was most admirably fitted. Our sympathy extends, therefore, to the Editorial Staff of the AMERICAN VETERINARY REVIEW, whom we know feels most of all the loss to the profession.

Resolved, That a copy of these resolutions be sent to the family of the late Dr. Roscoe R. Bell and also to the AMERICAN VETERINARY REVIEW.

Signed for the Illinois State Veterinary Medical Association by

C. C. MILLS, President,
C. G. GLENDINNING, Vice-President,
N. I. STRINGER, Secretary.

March 14, 1908.

SYMPATHY FROM OHIO.

CANTON, OHIO, March 17, 1908.

Editors AMERICAN VETERINARY REVIEW :

DEAR SIRs—We, as a state association, deeply feel the loss of our grand and good brother, Dr. Roscoe R. Bell. To you, and the bereaved family, we extend our deepest and sincere sympathy.

OHIO STATE VETERINARY MEDICAL ASSOCIATION,
C. B. FREDERICK, *President*.

RESOLUTIONS ON THE DEATH OF ROSCOE R. BELL, LATE PRESIDENT, ADOPTED BY THE VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

At a meeting of the above association, held March 4th, 1908, the President appointed a committee of three to draw up suitable resolutions on the death of our late President, Dr. Roscoe R. Bell.

“WHEREAS, It is with profound sadness that we learn of the death of Dr. Roscoe R. Bell, a member of this society, with

whom for many years we have been associated. To know him was a pleasure, and to be his friend a privilege—active in the discharge of duty, cordial in manner, capable in speech, he was a man held in the highest respect and esteem by the general public as well as by his professional brethren. To realize that his voice is silent in death crushes us by the weight of our misfortune. Therefore be it

Resolved, That a page be set apart in the minute book of this association to his memory and that these resolutions be inscribed thereon, and that a copy be sent to the AMERICAN VETERINARY REVIEW for publication, and, be it further

Resolved, That we extend to Dr. Bell's family our heartfelt sympathy in their bereavement.

(Signed) J. L. ROBERTSON,
E. B. ACKERMAN,
W. REID BLAIR.

"No veterinarian, veterinary student or intending veterinary student should be without the AMERICAN VETERINARY REVIEW. Last month an article was written that was as good as ten lectures."—(*San Francisco Veterinary College Bulletin*.)

INSTITUTE OF EXPERIMENTAL MEDICINE IN BRAZIL.—The Brazilian Government has voted funds for the establishment of an experimental pathological institute at Manguinhos, intended for the study of the parasitic and infectious diseases of man, animals and plants, and for the preparation of serums.—(*Science*.)

A TEST CASE.—"I'm a 'beauty doctor,'" announced the stranger with the hand satchel full of cosmetics and massage machines. "Do you think I could get any practice around here?"

"Yeou make ugly things pretty, don't yeou?" drawled the old farmer in the speckled shirt.

"That's my business, sir."

"Wall, if yeou'll go down back of my barn yeou'll find an old slate colored cow with one eye and one horn, and wrinkles like canals all over her face. She's the ugliest cow in seven states, and if yeou can make her pretty I'll agree that yeou be a 'beauty doctor' an' give yeou a dollar."—(*Chicago News*.)

SOCIETY MEETINGS.

IOWA STATE VETERINARY ASSOCIATION.

The twentieth annual meeting of this association was held at the Commercial Club Rooms, Cedar Rapids, Iowa, January 28-29, 1908, with President Griffith in the chair. His address dealt with timely topics and was as follows:

“Members of the Iowa State Veterinary Association and Visitors:

“As we have a good program before us, I will not torture you with a long address; I am glad to see such a large number of veterinarians present. It certainly looks encouraging for the profession. I think I can truthfully say that there never was a time in the history of veterinary science, that the veterinarian should be more alive to the sense of their duty; the public in general are reaping the benefits of the progress made by the profession more now than ever before, the veterinary practitioner has proven his ability to treat the diseases of our domestic animals, and recommend the most approved methods of stamping out contagious diseases. The veterinary surgeon has his place, on the board of health in many localities, and has proven himself worthy of the confidence entrusted to him, and the efficient manner of meat inspection carried out by the Government has accomplished much towards promoting the health of our people, and added greatly to our foreign exportation of meats; however no particular interest or means have been employed by our state for the protection of our own people or the live stock interests, meats from diseased animals that have been slaughtered can be, and are sold on our markets. Why are we not as good as the foreigner and have healthy meat to eat? The Secretary of Agriculture, the Honorable James Wilson, with Dr. Melvin and all his staff of veterinarians and meat inspectors are doing a work that should receive the commendation and co-operation of all good citizens. In Iowa, we have a veterinary law, and I sometimes wonder if it is very much benefit to the profession, and the public in general. It certainly is a snap for the empiric as they nearly all of them have a license to practice, issued by the state au-

thorities, and which the public is led to believe is a diploma, and the better to convey my idea on this subject, I will relate one of the many cases that have come under my own observation. In an adjoining county to this, a farmer bought a western horse, and later discovered that he was discharging at the nose and decided that something was wrong. He went to town to employ the services of a veterinary surgeon. He was directed to one and when he saw who it was he was surprised, and said "Are you a veterinary surgeon?" as he had seen this so-called "doctor" shearing sheep, trading horses, and supposed him to be an all-around "jack of all trades." The "doctor" pointed to his state certificate which was hanging in a conspicuous place, with the remark, "I passed the best examination of any veterinary in the state." The farmer then concluded that the man must certainly be qualified with those credentials. He employed him, the "doctor" looked wise, and after carefully examining the horse informed the owner "that his horse had a new kind of distemper," and that he was just the man that could cure it; as a result other horses contracted the disease, and three mules died. The State Veterinarian was notified, and I was sent to investigate; after a careful examination and testing with mallein, the animals were pronounced glandered and ten head were killed. All this loss was caused by the ignorance of this so-called veterinary surgeon holding a state certificate, and who had treated these horses and mules for two years with considerable profit to himself, and many of you can recall cases of similar nature that have come under your own observation. I only want to illustrate to you the misplaced confidence that arises from these fellows holding a state certificate, which they claim is a diploma. I think it should be put on their license in large letters why they are allowed to practice, and their qualifications. There are some non-graduates practicing that are gentlemen and have a fair knowledge of disease and treatment; but I refer to the rank and file of them who brag about their forty years' practice and their success in treating water bound, hollow horn, wolf in the tail, who give chicken intestines for bots, taken from a black feathered chicken, and the whole list of obscure diseases are treated along similar lines. I used to wonder where these diseases originated from, but received some light on the subject a few years ago. Our county coroner was called to a case of an old fellow committing suicide

by cutting his throat, a book was found on his person telling about those aforesaid diseases and their prognosis and treatment. This book was published about 150 years ago and which had been passed down from one generation to another. It is to be supposed that this self-made "doctor" when he sat on the brow of the hill overlooking our beautiful city on a nice June morning and viewed God's handiwork there came to him a realization of his misspent life, how he had deceived the people all these years, and had charged them when he had done them no good, torturing the poor dumb animals in his ignorance, with doses of medicine which he did not know the action of, and realizing that his days of deception were over, he took his old dirty jack knife, and cut his throat, saying, "If you take nothing, nothing remains." A state law is a good thing and has done much to encourage veterinary education; it has been the topic of conversation for the past decade. I think every veterinary surgeon should encourage a higher education and if every veterinary surgeon would forget about the school from which he graduated long enough to consider the other veterinary colleges, and if in his opinion there was a more thorough school or college than his own, and would advise the prospective students to the best of his belief and use his influence for a higher preliminary education; at least he should be a graduate from a reputable high school before entering a veterinary college. I think a college should be very careful in admitting students, if they are going into the profession simply to make easy money they should never start. Select only those that would be an honor to the profession, another practice that should be discontinued in my judgment is this: if a student starts at a certain college he should be compelled to finish at the same college; at present if a student fails to pass his examinations at one college, he will find agents from another college ready to welcome him. If he wants to put in another year after he graduates at some other college it should be commended; it is somewhat amusing to hear some graduates brag about the merits of their respective colleges, and those fellows who graduated ten or twenty years ago are has beens. The better way, in my judgment, to judge, is by the success of the practitioner; it is quite often the case when a student graduates he considers he knows it all, need read no more and puts his books away, when in reality he has just commenced his career; if he does

not read and study and keep abreast of the times he will certainly be a failure. I wish to report a little state work that I have been doing the past year. The local packing house has been tagging hogs brought in by the farmers in this locality and when they have found tuberculosis in the hogs have notified the State Veterinarian, who has ordered me to test the cattle on the farms where the tuberculous hogs came from. I have tested about fifteen herds under those conditions and have found tuberculosis in the cattle in every instance, and this has proved to me a good method to locate tuberculous cattle. To eradicate tuberculosis under the existing laws is impossible, as many of our fine stock breeders refuse to test their cattle and continue to sell them for breeding purposes and spread the disease throughout the state. I know one man who bought a thoroughbred cow less than two years ago, and put her in with his herd; the cow became emaciated and died; I have since tested his cattle and out of fifty head found twenty-three diseased, most of them in the first stages of the disease. This same herd was tested two years ago and found free from disease. The buying of this one cow, in my opinion, has caused a loss of over two thousand dollars to this progressive young farmer. It would seem to me that a law compelling all cattle that are offered for sale for breeding purposes should be accompanied by a certificate certifying that they had been tested for tuberculosis and found free from disease would be a partial solution of the problem. I would advise all breeders to buy and sell by the tuberculin test; tuberculosis is spreading fast and Iowa appears to have more than her share, and the quicker some means are adopted for stamping out this disease the better it will be for man and beast. The Legislature passes all kinds of laws for the protection of game, and the eradication of noxious weeds which is all right and proper, but the principal source of revenue in an agricultural state like this is the beef, pork and dairy products which have been sadly neglected.

"In conclusion, I think the veterinarians throughout the state have had a prosperous year; there is a good demand for qualified veterinarians, both as practitioners and in the Government service, and we should feel proud that we are veterinary surgeons when our work is caring for poor dumb animals and the inspection of meats and milk for the millions of people who depend on our skill and honor. I am sure we are

serving our Creator in making this world better in which we live."

Address of welcome was made by Mr. Roland Schaver, Secretary of Cedar Rapids Commercial Club, and was full of good thoughts, of fellowship and of the future of the profession as reviewed by a layman. He extended a hearty welcome to the association.

Response of thanks on behalf of the association was tendered by Dr. S. H. Bauman, member of the last Legislature from Van Buren County. Dr. Bauman is a Democrat, but was elected by a large majority from a county that usually gives a handsome majority the other way, which shows in what esteem the veterinarian is held. Dr. Bauman's address follows:

"I wish to thank you in behalf of the I. V. A. for your very kind and gracious words of welcome. I assure you we appreciate your kind treatment. We, as an association, have not forgotten the kind treatment received when we were here five years ago, and when the invitation came to again visit Cedar Rapids we were all glad to accept the same. It is just like going to Grandma's, and we get the cookies too. We greatly admire your city with her fine parks, broad, clean streets and avenues, fine buildings and extra fine hotels. When here before everyone tried to make it pleasant for us, and the press treated us in the nicest manner possible, and the hotels—why it is the general remark among the boys. 'The best ever.' We thank you for the fine quarters provided by the Commercial Club in which we meet, and I assure you every one of the visitors will go to their homes having a warm place in their hearts for your city. Our first impressions are sometimes sadly shattered on a second visit, but we find our second visit even more satisfactory than our first. Again I thank you in behalf of the association."

Minutes of the nineteenth annual meeting as published in April, 1907, AMERICAN VETERINARY REVIEW, were read and adopted as published.

Treasurer's report read and auditing committee appointed, composed of George Scott, D. H. Miller and G. L. Blanche, which committee reported favorably. Report adopted, and committee discharged.

REPORT.

Receipts.

To cash on hand January 26, 1907.....	\$38 05
To cash for dues, January 27, 1907, to January 27, 1908, inclusive	131 00
To membership fees, January 27, 1907, to January 27, 1908, inclusive	50 00
	<hr/>
	\$219 05

Disbursements.

By cash, F. W. Meyers, P. M., stamps..	\$22 00
By cash, G. L. Caswell, printing.....	17 75
By cash, F. W. Meyers, printing.....	6 25
By cash, W. C. Rollins, printing.....	5 25
By cash, Hal C. Simpson, salary.....	50 00
By cash, Miller & Gibson, clinics.....	10 00
By cash, H. Pester, minutes.....	15 00
By cash, St. Louis Button Co., badges..	10 00
Cash in Treasurer's hands.....	82 70
	<hr/>
	\$219 05

Resignation of W. A. Stuhr tendered; was accepted and Dr. Stuhr was elected to associate membership.

D. O. Knisely, of Topeka, Kansas, was elected to associate membership.

C. J. Heckard was detained at home on account of sickness and the Secretary read his case report on Purpura Hæmorrhagica. This subject brought out considerable discussion. G. M. Walrod gives Potassium Chlorate, Spts. Turpentine and Raw Oil in small doses. When swelling is extensive uses hot salt fomentations.

W. W. Talbot reported two cases of possibly Purpura with swollen heads. Upon opening, pus was obtained. He used hot fomentations and Potassium Iodide. E. A. Richardson obtained good results from Adrenalin Chloride. S. H. Bauman gives Ft. Ext. Ergot up to $\frac{3}{4}$ i three times daily in severe cases.

C. M. Walrod read his case report of "Traumatic Parotitis of Dog." Afterwards it was freely discussed.

Discussion of canker in foot was freely indulged in. Nearly all reported good results from cauterization, either by medicinal or mechanical means.

A. F. Baldwin reported case of Actinomycosis of Tongue in a horse. Treatment of Potassium Iodide until Iodesim was produced twice. Showed decided improvement. There was some odor due to decomposing of food retained in mouth.

J. W. Griffith reported cases of swollen tongue being treated successfully with Belladonna Ft. Ext. and Boric Acid solution.

J. H. McLeod reports peculiar case. Horse working regular taken sick. Inside of one hour stiff all over. Very troublesome to move, when down, had to be helped up, neck inclined to right side, walked in a circle, tongue swollen.

Treatment of Potassium Bromide, Turpentine and Raw Oil resulted in recovery.

P. Malcolm reported case of Echo Jr. P., 2.07 $\frac{1}{4}$, when being driven wrong way of track, stumbled and fell. Some difficulty in getting on feet. Great difficulty in getting to stable. Soon afterwards an immense swelling developed behind elbow, which extended between front legs. Was sore and swollen, unable to eat and was given oatmeal solution in water. Was a rupture of pectoral and external thoracic muscles caused by falling on foot. Skin was not broken. Swelling was opened and a great deal of blood and serum escaped. Temp. 103. Treatment of Quinine Strychnine and alcohol in water. Hot fomentations of a weak Bichloride solution resulted in perfect cure.

P. O. Koto reported case of immense swelling on hip. Opened and a great deal of blood and serum escaped. Found to be a rupture of popliteal artery. Made recovery.

W. A. Heck reported cryptogamic poisoning. Physic and Potassium Iodide \mathfrak{z} iv three times daily. Recovery in most cases.

Hal C. Simpson reported sore lips and gums caused by barley beards.

H. E. Talbot reported good results from weak chromic acid solution on ulcers of this kind.

J. W. Griffith reported on Epulus as seen in yearlings. Repeated operations and acetic acid usually cured.

P. Malcolm reported large growth on front of metatarsal region removed with comparatively good results.

J. H. McLeod reported good results from tenotomy in young colts for knuckling.

Hal C. Simpson reported case of Plantar Neurectomy on a horse that came to hospital on three legs from ringbone. Field of operation shaved and thoroughly cleaned with soap and Bichloride solution. Operation successful and animal walked off sound. Had good care in hospital for nearly one month without healing, no neuroma or excessive granulation, but no tendency to heal together.

This horse was about ten years old and had previously been cut by barb wire at different times upon all four feet and legs, and in addition had had Fistulous Withers, which had been cured over two years.

H. McConnell told of having been called to see cattle suffering with what he called "Mad Itch," in which they would get up against barb-wire fences and rub until skin was cut into threads, licked parts, tried to bite skin even after they were down, would wriggle around trying to relieve the intense itching, and would keep it up until death ended all. Was more than likely caused by provender, as a change stopped the spread of the disease.

C. M. Walrod reported similar condition caused by eating millet and millet seed in excessive quantities. Post mortem showed impaction of Omasum. Changed feed and gave physic and no more were affected.

M. H. Reynolds, of St. Anthony's Park, Minn., spoke of the Minnesota Stallion Law, mentioning the mistakes of same and offered suggestions for betterment. Stallions having spavins, ringbones, roaring cataract, chorea and curb or curby hock or any contagious or infectious disease were barred from registration.

He also advised the veterinarian to become a member of the different Live Stock Associations, read papers at their sessions, get in touch with them, help them and in turn get them to help us in securing legislation that is for mutual advancement.

January 29, 1908, meeting called to order at 9 a. m.

R. R. Hammond read report of committee on sanitation, which caused quite a good deal of discussion. Report was accepted and committee discharged.

Dr. W. A. Heck reported case in which several hundred dollars worth of cattle died that were being watered from a well into which a number of rabbits had fallen, putrefication followed and the odor from the well could be detected over

100 yards from the well it was so foul. All affected cattle died of a peculiar "mad itch" in which condition were pitiful.

P. Malcolm reported somewhat similar condition caused by city sewerage. A lack of interest was shown through fear of harming some one. He insisted with the result that the city installed septic tank.

H. G. Killips reported loss of nine head of horses that were running in a pasture below septic tank of a state institution at Mt. Pleasant. Water contained 4 grs. to gallon of caustic potash. Owner sold horses which died. He was sued and judgment secured. Owner presented claim to State Legislature, which appropriated him \$1,050.

J. W. Griffith reported loss of hogs near Cedar Rapids that were fed dish water and slops from hotels where caustic potash was used as an aid in cleaning dishes. This slop was hauled in old filthy tank wagons.

L. U. Shipley reported infectious Mammitis in local dairy herd where the cows were fed ensilage in which there was a large amount around the edges spoiled. Stopped feeding this ensilage and conditions improved, those affected recovering and no new cases resulted.

W. A. Heck reported Cesarean operation in sows. This was one of the most freely discussed papers presented at the meeting. All seemed to think it an important subject, although only a few had been doing that line of work.

H. B. Treman reported on impaction of the caecum. This was freely discussed by a great many. D. H. Miller reported on similar case with post mortem showing gangrene of parts. Also one that acted very similar in which post mortem showed that one of the ovaries had adhered to rectum.

P. A. Ageson report was read by Secretary and was discussed. The use of chloroform in these cases particularly caused a number to express themselves pro and con, those favoring seemingly having the majority.

H. Hell reported actinomycosis of the scrotum in a steer. This was freely discussed.

R. R. Hammond reported on infection in foals. This subject gets nearer to the country veterinarian than most any other, and was thoroughly discussed. W. A. Heck reported of infected bladder, ureters and kidneys shown on post mortem. E. A. Richardson used Lloyds Echinocea. P. Malcolm gives

internal antiseptics either to foal or mare. Does not ligate but washes outside and opens up umbilicus freely.

G. M. Walrod cleanses thoroughly H₂ O₂ ligates after injecting Tinct. Iodine.

S. H. Bauman forces Squibbs alum powder throughout with a probe. Has excellent results.

G. Scott ligates when urthra is patent.

J. W. Scott ligates, but if necessary to have drainage, opens skin to one side. Dries up wound as quickly as possible.

F. F. McEvers reports of leakage around suture.

F. F. Parker uses ecrasuer to crush off urachus.

W. D. Gilchrist read an article on meat inspection that was listened to with interest.

P. O. Koto read report of Committee on Legislation.

P. O. Koto, State Veterinarian, told of an outbreak of glanders in Clinton, and showed pictures of a teamster who contracted the disease and died.

F. H. P. Edwards and A. L. Wood were appointed on Committee of Resolutions on account of regular members being absent.

H. E. Talbot reported on mycotic lymphangitis, which might be mistaken for farcy, as at least fifty cutaneous abscesses every test failed to show glanders. Mule is still living and experiments will be made.

So-called Jack sores came in for some discussion.

F. H. P. Edwards read report of Committee on Resolutions. Report was accepted and committee discharged.

Report.

Your Committee on Resolutions beg to report: Whereas this meeting at Cedar Rapids has been so successful in point of attendance and number of new applications, and all of the papers have been so interesting and provoked such an animated discussion by the members present, and that we have been so royally entertained by the Committee on Arrangements, the Commercial Club and the Y. M. C. A., and

WHEREAS, It has come to our knowledge that Dr. Griffith has paid out of his pocket the sum of seven dollars for the use of the Y. M. C. A. Building, and

WHEREAS It is the custom for the sum of ten dollars to be set aside for the clinic, and

WHEREAS, Dr. Reynolds has given us such an interesting and instructive paper on milk hygiene, and that Dr. Carroll.

M. D., of Cedar Rapids, for his paper on comparative tuberculosis; be it

Resolved, That all present members, both old and new, strive to attain for the next meeting a higher standard; and be it

Resolved, It is the sense of the meeting that a vote of thanks be tendered the Commercial Club and Y. M. C. A. and Committee on Arrangements; and be it

**Resolved*, It is the sense of this Committee that Dr. Griffith be reimbursed in the sum of seven dollars; and be it

Resolved, By this committee, that we follow the usual custom and that ten dollars be set aside for that purpose; and be it

Resolved, That Dr. Reynolds and Dr. Carroll be tendered a hearty vote of thanks.

F. H. E. EDWARDS,
GEORGE C. SCOTT.
A. L. WOOD.

Wm. Drinkwater read report of cases of diseased testicle of Cryptorchids. C. E. Stewart found three hogs in one herd with only one testicle. Were fattened and killed on place, careful post mortem was made but no other found. W. A. Fullerton reported two cases of yearling colts. Each had three testicles. T. A. Shipley reported finding on killing beds hogs in which the cord had doubled on itself and had completely severed testicle, which would be found loose in abdominal cavity. J. W. Griffith reported case of horse where female organs predominated. Was unable to operate successfully, animal very mean. L. U. Shipley reported case of colt that ran until three years old. Looked like mare yet was unable to find testicles on either side. Never showed any disposition to be mean.

A. L. Brodie's paper was read and discussed.

F. J. Nieman reported case of melanosis in a stallion.

T. A. Shipley reported a country slaughter house conditions as found on examination. This was discussed quite freely. The picture was so vividly painted that a great many inquired if the author had used the one in their town for the example.

Secretary read a paper on pyemic arthulues, by Dr. Spencer of Blacksburg, Va. As the subject had been quite freely discussed earlier in the day it was passed over without discussion.

As an injustice was done A. T. Peters when he was expelled from Honorary Membership a few years ago, he was re-elected to Honorary Membership.

OFFICERS ELECTED.

President, D. E. Baughman, Fort Dodge.

First Vice-President, S. K. Hazelet, Oelwein.

Second Vice-President, A. L. Wood, Hampton.

Secretary-Treasurer, Hal C. Simpson, Denison.

H. E. Talbot, member Executive Committee.

Secretary made announcement that term of W. A. Heck expired, and H. E. Talbot was elected to his place. Attention was called to the mistake. Motion was made that original motion be repealed, and that Talbot be elected to succeed Koto instead of Heck. Carried.

J. W. Griffith as retiring president thanked the members for past favors. D. E. Baughman, incoming president, thanked all and hoped for the same hearty co-operation as had been extended in the past.

CLINIC

Was held at Dr. J. W. Griffith's Hospital, January 30, 1908.

Trephining Frontal Sirius, J. W. Scott; Peroneal Tenotomy, D. H. Miller; Peroneal Tenotomy, F. F. Parker; Straightening Tail, George Scott; Straightening Tail, C. E. Stewart; Tenotomy, J. H. McNeil; Median Neurectomy, J. H. McNeil; Arytenoridectomy, J. H. McNeil; Trephining for Nasal Tumor, N. A. Kippen; Firing Ringbone, T. F. McEvers; Firing Spavin, L. U. Shipley; Amputation of Penis, W. A. Heck; Spaying Bitch, L. U. Shipley; Pole Evil, D. H. Miller—C. E. Stewart.

C. H. Stange, Superintendent of Judging, a number of very fine driving, saddle and draft horses were exhibited. Ribbons were awarded.

Those present who registered were: G. A. Scott, Waterloo; G. Kerr, Washington; C. J. Graf, Manning; A. Kaderabek, Fort Dodge; L. N. McMay, Garden Grove; G. Lames, Dysart; T. C. Roach, Toledo; P. Malcolm, New Hampton; P. O. Koto, Forest City; W. C. Stewart, West Union; J. H. Spence, Clinton; W. A. Heck, West Liberty; E. A. Richardson, Goldfield; J. N. Edwards, Stewart; S. H. Bauman, Birmingham; T. A. Shipley, Cedar Rapids; C. J. Hackett, Muscatine; L. W. Russell, Anamosa; T. F. McEvers, Grinnell; A. L. Wood,

Hampton; J. W. Griffith, Cedar Rapids; C. E. Stewart, Chariton; W. E. Miller, Cherokee; L. L. Diller, Marshalltown; L. U. Shipley, Sheldon; Henry Hell, New Liberty; G. A. Dodge, Northwood; John Thomsen, Armstrong; G. M. Walrod, Storm Lake; R. R. Hammond, Cherokee; W. R. Fullarton, Dubuque; R. R. Dykstra, Ames; A. F. Riechman, Farley; S. K. Hazelet, Olewein; H. Killips, Mt. Pleasant; C. W. Anderson, Jewell Junction; J. H. McLeod, Charles City; B. Harmon, Decorah; J. C. Glenn, Wyoming; D. E. Baughman, Fort Dodge; T. J. Neiman, Marshalltown; C. H. Stange, Ames; Wm. Drinkwater, Monticello; H. E. Talbot, Des Moines; E. E. Howe, Des Moines; S. H. Miller, Rock Island, Ill.; J. W. Scott, Manchester; O. A. Diller, Ottumwa; G. L. Buffington, Brooklyn; B. F. Barber, Fonda; F. C. Bowman, Williamsburg; H. C. Rodgers, Oskaloosa; D. H. Miller, Des Moines; N. A. Kippen, Independence; James Dixon, Tipton; G. W. Blanche, Belle Plaine; W. D. Gilchrist, Cedar Rapids; Hal C. Simpson, Denison; A. F. Baldwin, Creston; W. E. Sharp, Newton; F. L. Roach, Preston; F. F. Parker, Oskaloosa; S. B. Moon, Rock Rapids; F. A. Daudel, Hawkeye; O. G. Ruffcorn, Defiance; G. C. Rasmussen, Audubon; J. P. Jorgensen, Elkhorn; H. M. McConnell, Kansas City, Mo.; S. Stewart, Kansas City, Mo.; C. L. Wilhite, Manilla; W. F. Lazear, Derby; W. W. Talbot, Pella; H. L. Stewart, Lacona; Jerry Wolte, Grand Mound; A. J. Treman, Lake City; J. A. Anstney, Massena; J. S. Potter, Iowa City; H. B. Treman, Rockwell City; Wm. E. Madson, Ames; J. H. McNeil, Ames; Tom Downing, Washington; F. H. P. Edwards, Iowa City; A. S. Brodie, Cedar Falls; Victor E. Kovar, Chicago.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

The twenty-sixth meeting of this association convened at Lansing, Mich., February 4, 1908, at 3 o'clock p. m., with President McDonald, of Flint, in the chair. Secretary Black, being absent, Dr. William Jopling, of Owosso, was appointed Secretary *pro tem*.

President McDonald in his annual address welcomed the members and visitors, and asked their indulgence for the short address he had prepared. His little boy was just convalescing from an attack of pneumonia, and the time and care the child required prevented the preparation of a lengthy address.

Dr. Hawkins was called upon at this time for his paper on "The Ancient History of Veterinary Science." The Doctor's paper was well received and was favorably commented on.

Under the Head of Reports of Committees, the Committee on Diseases made its report; Chairman Veldhuis, B. A. I. Inspector, Detroit, spoke of tuberculosis and glanders.

Dr. Hawkins, discussing Dr. Veldhuis' talk, reported five cases of glanders in Detroit. Prof. C. E. Marshall, member of committee, gave a talk on "Contagious Abortion," saying that it was quite prevalent in this state; the germ a peculiar one and causing more mischief than tuberculosis; mentioning disinfectants most useful. He also spoke of diseases in sheep and swine, and stated that no remedy had been found as yet for "hog cholera."

Dr. G. W. Dumphy, of P. D. & Co., discussing Prof. Marshall's report, said he would like to impress the importance of contagious abortion upon the members. It is becoming alarming in extent. We cannot exercise too much care. Veterinarians should give this disease their personal attention and not leave the treatment in the hands of others. Bichloride should be used with caution. The Doctor also spoke of hog cholera, and said that no remedy had yet been discovered. Dr. Armour asked Prof. Marshall what disinfectant he would advise on contagious abortion? The reply was 1% Lysol Sol. Dr. Dumphy recommended the same, but said any coal tar product was good; he also advised Lysol, strength $\frac{3}{4}$ of 1%. Dr. Deadman, of Sault Ste. Marie, spoke of an unusual disease occurring in his vicinity which was very fatal. High temperature, germ in soil of pasture. Dr. F. C. Wells, of Saline, ex-State Veterinarian, spoke of this disease also, did not know the cause, but was found in the copper country.

Dr. Harrison's paper, "Cases Met With in Practice," was an account of those cases of difficult parturition, which although the outlook is favorable, the results were fatal. Dr. Harrison's contributions are always practical and this paper was no exception.

Dr. Dumphy, as a member of Committee on Intelligence and Education, spoke of the meeting of the Nebraska Veterinary Association, in Lincoln. He said the Westerners are hustlers and beat us a block in energy and enthusiasm. He suggests further that we invite Prof. Shaw to give a talk upon "Animal Husbandry," at our next meeting. Dr. Hawkins advised the

younger members to get into the harness and inject vim and energy into our association. Dr. Brenton also discussed Dr. Dumphy's suggestions.

Dr. A. McKercher, Chairman Committee on Clinic, said that owing to the amount of matter on the program clinics were out of the question.

President McDonald asked that the question of a summer meeting be taken up. Dr. Deadman presented a personal letter from the Mayor, and an official letter from the City Council, and a letter from the Commercial Club of Sault Ste. Marie, all extending cordial and pressing invitations to hold our next summer meeting in their city. Dr. D. B. Allen, by letter, and Dr. Deadman personally added pressing requests that we accept the invitation of their city, and that they would see that we had a good time. Drs. Dumphy, Armour, Harrison, States, Stevens, Gibson and Wells all spoke favoring going to the Soo for our summer meeting. Action postponed until later in the session.

Upon motion the meeting adjourned until 7 o'clock.

7.30 P. M.—Meeting re-convened. President called for roll-call, Secretary Black having arrived with the books. The following members were present:—Drs. H. M. Armour, A. E. Alexander, S. Brenton, Judson Black, Hal. L. Bellinger, W. F. Carr, Chas. H. Clark, J. F. Deadman, E. Austin, J. D. Bell, F. M. Blatchford, L. F. Baldock, H. H. Clement, D. Cummings, F. G. Duff, Jas. S. McDonald, James Drury, D. S. DeWolfe, R. F. Erwin, Geo. D. Gibson, J. Hawkins (Hon.), James Harrison, Wm. Joplin, J. J. Joy, R. W. McDonald, Geo. C. Moody, Robert Muir, Prof. Marshall (Hon.), John Russell, U. S. Springer, H. E. States, A. B. Sexsmith, W. H. Wilkinson, F. C. Wells, J. C. Whitney, Z. Veldhuis, Geo. W. Dumphy, W. H. Erwin, Thomas Farmer, H. M. Gohn, W. A. Haynes, W. S. Hamilton, C. L. Jones, D. R. Krull, A. McKercher, A. H. Moody, W. W. Munger, C. C. Petty, J. B. Stevens, G. R. Switzer, H. S. Smith, Geo. Waddel, P. W. Wooley, C. A. Waldron, J. E. Ward—55. Visitors—Pres. J. L. Snyder, M.A.C.; Prof. R. S. Shaw, M.A.C.; W. J. Johnson, Paw Paw; F. G. Gilbank, Detroit; W. A. Ewalt, New Haven; H. T. Creagan, Decatur; W. L. Drinkwater, Utica; Dr. L. M. Hurt, Veterinarian M.A.C.; Drs. A. L. Tiffany, Monroe, and V. M. Curry, Midland; E. B. Cavell, Northville; T. L. McConnell, Reading; Rep. Simpson, of the Legislature.

Moved and supported that the regular order of business be postponed until to-morrow morning, and the program as arranged for this evening be proceeded with. Carried.

Pres. Snyder was called upon for his address. He extended on behalf of the M. A. C. an invitation to our association to hold any of our meetings at the college; also to come at any time collectively or as individuals and make a visit and inspect the live stock, etc. Advised feeding all hay and keeping all straw on the farms. As live stock is in the line of all veterinarians, they should encourage the better breeds and pure strains.

In reply to a question by Dr. Dumphy, Prof. Snyder said: "The Board of Agriculture is anxious to institute a Department of Veterinary Science at the college at once, but would have to wait, as no appropriation was made for the purpose when the bill passed the Legislature authorizing the Veterinary Department. It would be necessary to curtail in some of the other departments, but he was sure that would come in a few years, if not sooner. "When we do have a school, we want the best, so that when men graduate from it they will take equal rank with the graduates from the best schools."

The report of Committee on Legislature, which was presented by Dr. Gohn, gave a very full and comprehensive history of the struggles and disappointments that were encountered before we procured the passage of our present law. Considering the forces that are always present opposing our efforts, we have accomplished more the past session of the Legislature than ever before. Rep. Simpson (who introduced an opposition measure and used ever effort to defeat our bill, and who finally accepted our amendments and secured the passage of our present law) was present and gave a talk on the legislative matters. He denied all knowledge of the substituting the word "or" for "and" in the law which was supposed to have been surreptitiously done by some person, thus making Section 4 read "Medicine *or* Surgery." Dr. Gohn submitted a letter from Rep. Norton, which said that the change was made at the suggestion of Rep. Baker and agreed to by Mr. Norton and Simpson. Drs. Stevens, Smith, Dumphy, Duff, McDonald, Waldron, Whitney, Switzer, Wells and Farmer, all spoke discussing the Legislative Committee's report. The question was pretty thoroughly considered of how to proceed against violators of the practice law, many taking the position that a committee of the association should act as prosecutors, others that the local officers of

the law are the only ones having jurisdiction. It was suggested that the sheriff or deputy be informed of the violations and that he or they should secure the evidence. No action was taken on this question.

It was moved and supported that the report of Committee on Legislature be received and filed. Carried.

Upon the suggestion of Dr. Gohn, it was decided upon motion to extend a vote of thanks to the Legislative Committee of another veterinary association in Michigan for their loyalty to our committee and bill, and strenuous opposition to the opposing bill and the parties pushing it.

Mr. Ed. G. Folsom, of Mt. Clemens, a student of the O. V. C., furnished a paper upon "*Strongylus Gigas* in the Dog" which was read by the Secretary. This was a history of an interesting post-mortem in a bitch which had died a day after ovariectomy from causes apparently remote from the operation. Ante-mortem symptoms observed were excitability, so much so that the owner thought she was rabid. Immediately before death she had spasms of the diaphragm. Post-mortem revealed in the region of the liver (which organ had almost disappeared) two gigantic worms, one 37 and one 22 inches long, one of which had pierced the diaphragm and had started into the thoracic cavity. After considerable research, Mr. Folsom concluded he had run on to specimens of the *Strongylus Gigas*, which conclusion was substantiated by Dr. Duncan, lecturer on Entozoa in the O. V. C.

The following gentlemen made application for membership:

Dr. Theo Lane, Ann Arbor, graduate of Western Vet. College, 1901. Vouchers, W. H. Erwin and H. S. Smith.

Dr. F. G. Gilbank, Detroit, O. V. C., 1888. Vouchers, J. J. Joy and James Hawkins.

Dr. V. M. Curry, O. V. C., 1906. Vouchers, W. F. Carr and W. A. Haynes.

Dr. E. B. Cavell, Northville, O. V. C., 1906. Vouchers, W. H. Erwin and F. M. Blatchford.

Dr. W. D. Seibert, Petosky, Det. V. C., 1896. Vouchers, Judson Black and Z. Veldhuis.

Dr. T. L. McConnell, Reading, O. V. C., 1905. Vouchers, H. M. Armour and J. C. Whitney.

Dr. H. T. Creagan, Decatur, O. V. C., 1892. Vouchers, Judson Black and Wm. Jopling.

Dr. W. Austin Ewalt, New Haven, O. V. C., 1907. Vouchers, Judson Black and E. Austin.

A. L. Tiffinay, Monroe, O. V. C., 1905. Vouchers, D. S. Crull and W. F. Carr.

Dr. W. J. Johnson, Paw Paw, O. V. C., 185. Vouchers, Judson Black and Wm. Jopling.

Dr. W. L. Drinkwater, Utica, O. V. C., 1886. Vouchers, Judson Black and E. Austin.

The applications were referred to the Executive Committee, who were requested to report next morning.

The admission of graduates of questionable colleges was discussed by Drs. Hawkins, Armour, Harrison, States, H. S. Smith and others. The opinion prevailed that while it would strengthen our organization as a political factor, the step was deemed inadvisable. Other than this, no action was taken.

Adjourned until 9 A. M., February 5th.

The regular order of business that should have been disposed of at the beginning of the session was taken up at this time.

The Executive Committee recommended the admission of the applicants to membership in the association, which was done in regular form.

The report of the Secretary-Treasurer showed the receipts of the past year, including balance on hand February 1, 1907, were \$360.54, from which was disbursed \$186.53, leaving a balance on hand February 1, 1908, of \$174.01.

The report was referred to the Committee on Finance.

Moved and supported that a committee be appointed to draft resolutions sympathizing with Dr. R. R. Bell, of New York, who was reported to be seriously ill. Carried. Drs. Jopling, Dumphy and States were named as such committee.

Communications from the Governor, Dr. R. R. Bell, Dr. D. G. Sutherland and others were read, and on motion were received and placed on file. Continuing the report of the Committee on Intelligence and Education, partially made yesterday, Dr. Dumphy advised that every legitimate effort be made with the next Legislature to get an appropriation allowed for the Veterinary Department of the M. A. C.

Dr. Jopling also spoke along these lines. It was suggested that our Committee on Legislation be also a committee to confer with and to assist the Board of Agriculture and the Faculty

of the M. A. C. in instituting a Veterinary Department at the college. Upon motion this suggestion was adopted.

Drs. Harrison and States advised getting to work early in the next session of the Legislature and work in harmony with the M. A. C. authorities in the effort to procure the necessary appropriation. Communication from State Veterinary Board containing correspondence reflecting on one of our members, which was referred to Executive Committee, who after making an investigation, found no cause for action by the association, as the charges were not substantiated.

Dr. C. A. Waldron's paper, "New One on Me," brought up a very interesting case of poisoning by locust bark in a team which the Doctor treated, and which showed very unusual symptoms, the cause of which was very obscure. (The cause was discovered after the team was convalescing.) The symptoms as found were: "Extreme lassitude, including almost imperceptible pulse, which when found was weak and prolonged; respiration less than normal by one-third and sonorous; temperature normal; no pain, no appetite; mucous membrane of the mouth somewhat swollen, caused by congestion of the capillaries; slight ptialism. Above all the dilation of the pupil. In fact, I should judge the same symptoms as belladonna poisoning." Dr. Armour reported a case almost identical to Dr. Waldron's which he knew to have been caused by locust bark. Drs. Brenton and Whitney said they had seen cases similar.

Dr. Jas. Drury gave an excellent and timely paper on "Contagious Abortion." This paper was particularly interesting at this time when this disease is unusually prevalent in Michigan. A good discussion followed on this subject.

Pres. McDonald announced that election of officers would be taken up immediately upon re-convening after dinner.

Moved and supported that we adjourn until 1 o'clock sharp. Carried.

1.30 P. M.—Election of officers now being in order, nominations for president were called for. Dr. T. G. Duff's name was placed in nomination. No further names being placed in nomination, it was moved and supported that the rules be suspended and that the Secretary cast the ballot of the association for Dr. Duff. This was done and the President declared Dr. T. G. Duff elected President for the ensuing year.

There being only one nominee for each of the offices, the same procedure was followed in case of each, and President McDonald declared the following elected in the order named:

First Vice-President—Dr. J. F. Deadman, Sault Ste. Marie.

Second Vice-President—Dr. George D. Gibson, Adrian.

Third Vice-President—Dr. W. H. Erwin, Howell.

Secretary and Treasurer—Dr. Judson Black, Richmond.

First Director—Hal L. Bellinger, Plainwell.

Second Director—D. S. Krull, Union City.

Third Director—W. A. Haynes, Jackson.

Fourth Director—A. McKercher, Lansing.

Fifth Director—R. F. Erwin, Alma.

Sixth Director—F. G. Gilbank, Detroit.

The question of a summer meeting was brought up again at this time. It was moved and supported that we have a summer meeting at the Soo next summer. After considerable discussion, which brought out the fact that as business of vital import to the veterinary profession in Michigan demanded a full attendance of the members of the A. V. M. A. at the meeting at Philadelphia, that it would be better to postpone our summer meeting until another year. Question put and defeated.

Moved and supported that it is the sense of this meeting that the summer meeting be held at the Soo in the summer of 1909. Carried.

Prof. R. S. Shaw, experimenter with live stock at the M. A. C., gave an address upon the subject, "The Relation of the Veterinarian to the Live Stock Industry." He spoke of live stock in the West and that it was largely inspected by veterinarians. The interests of the veterinarian and the live stock industry are identical. He spoke of the necessity of improving breeds of live stock and that veterinarians could do a great deal of missionary work along this line. The quality of live stock in Michigan is below the average, which is due to the indiscriminate crossing of breeds, which is demoralizing.

The Professor made another startling assertion when he said that the 28,500 bulls in Michigan were worth \$5.80 less per head than year-old steers. There are but very few poor-bred herds in the state. Capital is lacking among the average farmers. Better methods of breeding is what is wanted. Breed along uniform lines. He advised veterinarians to co-operate with the live stock breeders in the state in the organization of a Horse

Breeders' Association, there being no organization of that kind in Michigan.

Dr. Dumphy also spoke along these lines and thought that our association should meet at the same time as the State Live Stock Breeders' Association so that one day or one-half day could be made a joint meeting. In this way questions of mutual interest could be discussed.

Dr. Cummings suggested that we change the date of our annual meeting so as to have it come earlier in the season and to conform with the date of the Stock Breeders' Association.

Dr. Hurt, Veterinarian at the M. A. C., spoke complimenting the association on its veterinary law.

The committee that was requested to write resolutions sympathizing with Dr. Bell offered the following, which was unanimously adopted.

"Whereas, It has been made known to the members of this association that Dr. Roscoe R. Bell, of Brooklyn, N. Y., Editor of the AMERICAN VETERINARY REVIEW, and one of the most prominent and highly respected veterinarians in this country, is seriously ill.

"Therefore be it resolved, That this association express its sincere regret for his affliction and our earnest wishes for his speedy recovery;

"And be it further resolved, That a copy of these resolutions be forwarded to our beloved fellow-worker and the same be spread upon the minutes of our association.

"GEO. W. DUMPHY,
"WILLIAM JOPLING, } *Committee.*
"HARRY E. STATES,

The Finance Committee reported that they had looked over the report and books of the Secretary-Treasurer and found everything correct and balance on hand as stated in report,

Drs. Campbell, Jackson, D. W. Curtiss, Cadillac and G. A. Waterman, Ann Arbor, presented their resignations as members of the association. As the gentlemen were clear on the books, on motion their resignations were accepted.

The following promised papers for our next meeting: Drs. Armour, Smith (H. S.), and Cummings.

Dr. W. A. Haynes' paper, "My Personal Experience with Hydrophobia," was a good history of a number of cases of this

disease coming under the Doctor's own observation, and was well received.

Moved and supported that the Secretary be allowed ten dollars in addition to his regular salary for services the past year. Carried.

Notice was given of the following amendments to the by-laws for final action at our next meeting:

1. That Article IV., Chapter II., be changed to read \$35.00 instead of \$25.00.

2. That Article II., Chapter VI., be changed to read "shall be designated by the Executive Committee," instead of "on Tuesday after the first Monday in February."

Moved and supported that we extend a vote of thanks to Pres. Snyder, Prof. Shaw and Hurt for their contributions to our program. Carried.

Moved and supported that a vote of thanks be given our retiring officers for their earnest work for the welfare of the veterinary profession for the past year. Carried.

Retiring Pres. McDonald called Pres.-Elect Duff to the Chair and handed him the gavel. Dr. Duff, in a few appropriate remarks, thanked the association for the honor they conferred upon him in electing him to the office of President, and then announced the standing committees as follows:

Intelligence and Education—Dr. William Jopling, Owosso; Dr. George W. Dumphy, Detroit; F. C. Wells, Saline.

Disease—Dr. Z. Veldhuis, Detroit; Dr. H. E. States, Detroit; Prof. C. E. Marshall, M. A. C.

Legislation and Colleges—Dr. C. A. Waldron, Tecumseh; Dr. H. M. Gohn, St. Johns; Dr. Jas. Harrison, Maple Rapids; Dr. G. W. Dumphy, Detroit; Dr. A. McKercher, Lansing.

Finance—Dr. D. Cumming, Port Huron; Dr. R. F. Erwin, Alma; Dr. John Russell, Elsie.

Clinic—Dr. A. McKercher, Lansing; Dr. George C. Moody, Mason; Dr. George Waddle, Kalamazoo.

Press—Dr. W. L. Brenton, Detroit; Dr. J. J. Joy, Detroit; Dr. J. E. Ward, Perry.

Notwithstanding the fact that many of our members were unable to get to the meeting on account of the blizzard and snow blockade this was one of the best meetings in the history of the M. S. V. M. A. in attendance and enthusiasm.

Adjournment.

JUDSON BLACK, *Secretary.*

INDIANA STATE VETERINARY ASSOCIATION.

This association met at Indianapolis, Ind., January 2, 1908, with President Archer in the chair and one hundred and two members in attendance. Minutes of previous meeting were read and approved. Reports of Secretary and Treasurer were also read and approved.

Dr. Davis reported for the Entertainment Committee, explaining that no banquet would be held, but that we were to sleep after night session and get up bright in the morning ready for plenty of clinic.

New members were admitted as follows:

Active List—Dr. J. C. Carson, Cicero, Ind.; Dr. C. I. Fleming, Terre Haute, Ind.; Dr. B. S. Hess, Kentland, Ind.; Dr. A. V. Johnson, New Albany, Ind.; Dr. F. C. McCoy, Orleans, Ind.; Dr. F. P. Scott, Oxford, Ind.

Honorary List—Dr. W. A. Axby, Harrison, O.; Dr. E. E. Guinn, Oakland, Ill.

Report of State Board of Veterinary Medical Examiners was read. It was exhaustive in information and statistics.

Officers for ensuing year:

President—Dr. G. H. Roberts, Indianapolis, Ind.

Vice-President—Dr. Walter Langtry, Ft. Wayne, Ind.

Secretary—Dr. E. M. Bronson, Indianapolis, Ind.

Treasurer—Dr. J. W. Klotz, Noblesville, Ind.

Board of Censors—Dr. J. G. Heighway, Ladoga, Ind.; Dr. W. A. Dryden, Columbus, Ind.; Dr. A. V. Carter, Covington, Ind., were appointed by the newly-elected Vice-President in the absence of the President.

Literary Program.

Dr. O. C. Newgent, of Russiaville, read a paper on "Malignant Oedema," the patient being four months in recovering; also a paper on "Locomotor Ataxia," covering about 25 cases, upon which he had exhausted the materia medica with but little or no success. Dr. Boor, under discussion of the above, reported the affection in a foal by McKinney that has apparently at the age of two years recovered under the use of Nux Vomica and Liquor Potassium Arsenitis.

Dr. J. E. Gibson, of Jamestown, read a paper on tuberculosis, with reference to a state inspection law. The subject was handled in an energetic and able manner. Discussion:

Dr. Boor—No cattle should enter the state without the tuberculin test.

Dr. Langtry—Is tuberculin the only test?

Dr. Gibson—So the Government claims.

Dr. Langtry—Inject tuberculin and it will wake up the encysted bacilli and produce the disease when you would not have it otherwise. It also renders stock barren—(and cited cases to support statement). To check tuberculosis or any other hereditary disease, see that mated male and female are free from disease.

Dr. Fleming—I believe in tuberculin as a sure test. A dairy of 50 Jersey cows and 2 bulls were injected, and 48 reacted; post-mortem verified 47 of them.

Dr. R. A. Craig—A prize steer at Chicago Fat Stock Show was injected; he reacted and was killed under inspection and the carcass was tanked. As we use it on the college herd it is decidedly successful.

Dr. C. I. Fleming's paper on glanders was largely statistical, but developed or proved the fact that mallein when in competent hands was a reliable test.

Dr. J. L. Hiday's paper was a complex "colic" and azoturia, one of those unexpected things that are not "in the book."

The azoturia being peculiar in that it followed, seemingly, an attack of acute indigestion. Treated with 3ij of Adrenalin Chloride in 3vi water for three doses; animal got up and well.

In reply to query as to virtue of Albumone, Adrenalin, W. B. Craig says: "I have tried them and they are N. G."

Dr. A. V. Carter used Upjohns Couch Grass combination 3j doses, t. i. d. Bronson suggested bleeding and inject normal salt solution.

"Infectious Pneumonia," a paper by Dr. W. B. Craig, brought out good discussion in the way of treatment, especially with Tallianine and Nuclein.

Adjourned 5.30.

Reassembled at 8 p. m. to listen to Dr. Walter Sharpe on some diseases of the eye, considered from the veterinarian's standpoint.

It was so rare a subject and so well treated that the Doctor was given a vote of thanks. He discussed Iritis, Glaucoma and Recurrent Ophthalmia. The latter was caused principally by heredity; also by low damp pasture and poor hygiene. Astigmatism, as related to the short and far-sighted horse or "shyer,"

was considered. He urged us to familiarize ourselves with the use of the Ophthalmoscope.

Dr. J. L. Axby's paper on "Serum Therapy" was well received and fully discussed. His remarks drew out the fact that there are several antitoxins that are new but valuable, as: Nuclein in purpura and respiratory trouble; antitetanic serum in large doses as a curative for tetanus, etc.

Dr. R. A. Craig, with his slides of "Infectious Organisms," was decidedly educative.

Dr. G. H. Roberts gave quite a number of slides of "Glanders," also some recovered injuries, that were of more than passing interest, thanks to the Doctor's hobby for the camera.

The literary program finished, the President announced the following committees:

PROGRAMME—Dr. F. H. Davis, Rushville, Ind.; Dr. Don. McMahon, Noblesville, Ind.; Dr. Walter Langtry, Ft. Wayne, Ind.

ARRANGEMENT—Dr. W. B. Craig, Indianapolis, Ind.; Dr. J. L. Axby, Lawrenceberg, Ind.; Dr. O. C. Newgent, Russiaville, Ind.

LEGISLATIVE—Dr. J. B. Archer, Spencer, Ind.; Dr. T. A. Balser, Newcastle, Ind.; Dr. O. L. Boor, Muncie, Ind.; Dr. G. G. Ferling, Richmond, Ind.; Dr. J. L. Mitchell, Evansville, Ind.; Dr. F. H. Davis, Rushville, Ind.; Dr. C. P. Wilson, Greenfield, Ind.; Dr. R. A. Craig, La Fayette, Ind.; Dr. J. W. Klotz, Noblesville, Ind.

Adjourned 11.45 P. M. to meet at Indiana Veterinary College at 8.30 A. M.

Friday A. M.—Most of the members in attendance the day before remained over for the clinic which was held at the Indiana Veterinary College. The first on the program was a ridgling operation by Dr. J. W. Klotz, of Noblesville. The second was a removal of the lateral cartilage by Dr. Klotz. While the preparation of this was going on, Dr. Davis exhibited a case of the same kind, operated upon by Dr. Roberts sixty days previous, the animal being shod and ready for work, thus showing the members the operation and the result. There was also exhibited a case of atrophy of the gluteal muscles without any defined or known cause. The case elicited considerable discussion which was finally concluded to be due to a paralysis of the

sciaticus. Dr. Davis trephined gray mare and removed two diseased molars. The sinuses of that side being full of inspissated pus. Several other minor operations were performed, and in all it was the most interesting clinic in recent years.

E. M. BRONSON, *Secretary*.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

This association held its semi-annual meeting in the Board of Trade Rooms, Reading, Pa., on Wednesday, December 19, 1907, with Dr. D. R. Kohler occupying the chair, while Dr. W. G. Huyett recorded the minutes.

The following members responded to roll call: Drs. Kohler, Schneider, Wehr, McCarthy, Huyett, Noack, Posteiger, Bieber and W. S. Longacre.

Visitors, Drs. C. J. Marshall, W. H. Hoskins, Secretary State Examining Board, and F. H. Schneider, Philadelphia; W. H. Ridge, Moose; F. U. Ferusler, Lebanon; J. W. Sallade, Members of Examining Board, Auburn; Frank Mackie and G. Allen Jarman, State Veterinarians, Baltimore, Md.; S. G. Burkholder, physician, Reading; Mr. J. J. Kenney, New York, and others.

The minutes of the previous session were read and approved. (President's address enclosed; kindly insert here if you consider fit.)

The secretary read numerous communications, among which was one from Dr. J. A. St. Clair, of Indiana, Pa., offering his practice for sale, owing to ill health.

a. Delivered to Pennsylvania Veterinary Medical Association.

Dr. Huyett made a report of its semi-annual session held at Harrisburg. He referred to the question of raising the registration fee from \$1 to \$5, which brought forth a good discussion; the money to be used by the State Veterinary Board for the prosecuting of illegal practitioners; this subject to be finally considered at the March session. The proposition of holding a three-day session of the society, instead of a two-day, for the annual meeting, was debated, and a postal card vote taken, this resulting in the two-day session, as customary. Dr. Huyett also announced that the Pennsylvania Association deserves much credit for having done much to bring the convention of the American Veterinary Medical Association for 1908 to Philadelphia. It will take place in September.

The local meeting argued the advisability of raising the registration fee. Some members opposed it because it would decrease the number registering, others concluding it would have a good effect, because it would rid the profession of persons who are a discredit to it.

Dr. Kohler, a member of this committee, also favored us with a good report.

b. Delivered Keystone Veterinary Medical Association.

Dr. Noack reported good meetings.

Drs. Marshall and Ridge, members of that organization, also praised the work of that small body.

c. Delivered American Veterinary Medical Association.

Dr. Noack says the meeting at Kansas City was by far the best ever held, with a gathering of upwards of 700 people, and taking in about 300 new members.

Dr. Marshall also referred to the excellent programme gone over. A new operating table, which seems very convenient, was shown and used at this meeting. He furthermore said that the veterinarians of Pennsylvania should all stand together to make the session of the American Veterinary Medical Association a success, if one desires to have the book of minutes or proceedings of the last national convention, he would furnish them for \$1.50 apiece. Every veterinarian that is eligible should become a member of this body next fall, as there are only about 15 members of this State, while we have about 300 eligible men.

Dr. McCarthy brought up the new Stallion law, a copy of which was read before the society, inquiring whether the owner of a stallion could breed from his own horse without having same registered.

Dr. Ridge says he can, because a man can do with his own stock as he pleases for his own use, but if he sells, it is different.

Dr. Marshall explained that the intention of this Stallion law was more a matter of education, trying to improve or encourage good breeding, rather than to prove burdensome or a source of prosecution upon the stock owner.

COMMITTEE ON MEAT AND MILK INSPECTION.

Dr. Newhard, the chairman, being absent, Dr. Noack, one of the State Meat Inspectors, was called upon.

He gave an interesting recital of the work thus far accomplished. Their work, he said, was strongly backed by public sentiment, and that the new meat inspection law has been received with more favor by the people of Pennsylvania than any

other law. Now and then a defiant butcher was met, but is soon persuaded to bow to the law, while the general public is in favor of the measure. Conditions were very bad in some instances, but upon a second visit we find great improvement. Every veterinarian should endeavor to gain the sentiment of the public in the necessity of local inspection. We find that many hogs are infested with parasitic diseases and tuberculosis, though hogs suffer more from parasites than cattle.

This work is very extensive, and at this time is only about one-half completed—while we maintain good inspection at one place one week, then go to some other section, some of the slaughter houses fall back to their former methods.

The inspectors are encouraging the councils of municipalities to install local meat inspection offices with their own inspectors.

Dr. Ridge says farmers of his section of the State are required to procure an annual license at City Hall to sell their own produce, but are not allowed to sell poultry or any meat, as they are obliged to lift another license for that privilege. Dr. Ridge read a copy of said license before the society.

Dr. McCarthy says in Pottsville all farmers come to town and sell their goods, without any license. Dr. Ridge thinks, if this question would come to a suit, the farmer would win out.

Dr. Noack says farmers cannot be prevented from killing their own cattle and hogs, and an inspector cannot take diseased carcasses if the owner insists he wants it for his own use, but if he sells or offers for sale such meat, then he comes under the law.

To another question it was stated that an inspector could not enter any hotel and seize diseased meat, but in first class cities there are local inspectors who are clothed with such powers.

It was also brought to light that all butchers in Berks county have to take out an annual mercantile license, besides butchers in first class cities have to pay \$1 regular butcher license.

Dr. Schneider inquired from Dr. Marshall their system of milk inspection in Philadelphia milk dairies.

Dr. Marshall, taking the floor, said that all dairies within the city limits supplying milk must have their herds tuberculin tested, but outside the city limits conditions were as bad as at any other place; again, all milk coming in the city is tested once in a while for formaldehyde, etc.

Dr. Marshall, furthermore, said milk in Philadelphia is fast improving in quality. He thinks Pennsylvania can boast of a new milk inspection law within a year or two.

Dr. Ridge proclaimed that every veterinarian could be of valuable assistance in the passage of beneficial veterinary laws by speaking or writing to your representative at legislature; again, have a small, concise report of the measure at stake published in your local paper or see and interest some influential man who probably can do more with the legislator or politician.

The question of sanitary conditions of dairies was also discussed; as dirty, filthy and dark stables are just as bad as tuberculosis itself.

Dr. Kohler urged a campaign of education among the farmers regarding the terrible results of tuberculosis and suggesting that literature pertaining to it should be distributed.

It was the consensus of opinion of the members that it was a mighty big job to rid our State of this dreaded disease.

Dr. Noack differed from the opinion of Dr. Ridge that in testing cattle that the rising temperature is often produced by other conditions. It was, however, explained that a rising temperature from other conditions could be differentiated as follows: The temperature of a tuberculous cow, if diseased, rises (then sinks) and rises again, while an animal probably affected by some other condition, the temperature rises, then suddenly sinks, and stays down.

Animals ought not to be tested at once when cattle are shipped and just taken from car; again, an animal should not be tested when you have a high temperature prior to your injection. Temperatures will drop in generalized cases—such instances having been reported by Drs. Ridge, Huyett and McCarthy.

If you have a temperature in testing of 104° F. after tuberculin is injected, you can depend upon that cow being tuberculous.

Dr. Marshall says he only takes the temperature once before the injection; for instance, takes it at 5 p. m., injects at 7 p. m., then takes temperature at 9 p. m., which will give you these two preliminary temperatures.

This question brought a good many members to their feet, but Dr. Marshall says it is a reliable procedure, as it is the routine followed by the secretary of the State Live Stock Sanitary Board.

Dr. Ridge says in testing a large herd time can be saved in using three thermometers at the same time. Use thermometers with an eye at one end, insert in vagina, have a string one foot long, fasten one end to eye of same, at other end have a rubber band with a button and button round the tail; then the next one, etc.

Some of the members considered this method not practical, having tried it.

Dr. Noack says don't test a cow if temperature goes up to 103.5° F. prior to injection, but hold her over for a day or two.

Drs. Leonard Pearson and S. J. J. Harger, of Philadelphia, were expected to be present but were detained by pressing engagements.

Dr. A. R. Potteiger read a brief but valuable paper upon "Cæsarean Operation in the Sow." He said in part, that he has operated on about 700 cases, with a mortality of only 5 to 7 per cent. Many hogs are raised in Snyder county, while but few cases of tuberculosis are met with. This paper was well discussed, many inquiring for the technique of the operation.

The rest of the essayists having failed to put in an appearance, neither forwarded their paper to the secretary, various other diseases were discussed.

Dr. Ridge referred to rumenotomy in cattle, having performed the operation with good success, though he complains of the difficulty of retaining the sutures longer than a couple of days, a fistula being the result, prolonging complete healing of the wound to 2 or 3 months.

Dr. Ridge has had experience with sulphate of magnesia as a local anaesthetic, and speaks favorably for its established use.

Shaking of the head in horses was next brought up and discussed.

Dr. Kohler reported a case of a *puller*; if you would drive said horse for an hour or two after meal time he would fag and stagger; not noticeable any other time.

Dr. McCarthy reported a horse that would break every check-rein, and if too strong, would switch and sit right down upon the shafts in driving; these conditions were attributed to nervousness.

Dr. Marshall says leave the proprietary remedies alone, because we don't know what they contain, while Dr. Hoskins added that we should also encourage people not to use them. Medicine, he says, is too uncertain at best. Also try to discourage the

advertisement of patent remedies and instruments; they tend to lower and degrade the status of the profession.

As secretary of the State Examining Board, Dr. Hoskins was called upon to give an account of State Registration.

He said that in 1889 there were 2,023 registered veterinarians in Pennsylvania, but that under the law of 1905, there were only 856; of the former number 300 had died, 100 had retired, and 500 were illegal practitioners.

He was of the opinion that next year there would be less than 800; of those now registered, less than 80 were under 30 years of age.

Unless there is a larger number of young men taking up the study of veterinary medicine, the number will fall to 700 before very long, and this is not enough.

We have counties in the State where there is not a single qualified veterinarian.

A serious thing that confronts registration is the enormous number of diplomas that are being issued by Correspondence Schools. I have plenty of evidence of parties who have purchased these diplomas at from \$60 down to \$12.50; one of these schools was reported to be in Iowa and two in Canada.

The young men in the country are led into buying them without receiving anything in return; they cannot register, and are simply that much money out of pocket, besides wasting a lot of time in studying the books sent them and answering the questions submitted.

There are Correspondence Schools that are doing a good work in some other lines, but these legitimate institutions are not issuing veterinary diplomas.

Dr. Sallade told of the advancement of the profession. It was at one time despised, he said, but is now recognized among the professions.

A motion was made to adjourn by Dr. Bieber, seconded by Dr. Huyett, when the members and visitors resumed in a body to the banquet hall of the Bessinger Café, where a well-prepared repast was tendered them by Dr. Noack. The table was prettily decorated, and Mr. Krick, the proprietor, served a well-selected menu in excellent style.

Dr. Hoskins, of Philadelphia, who officiated as toastmaster, called upon a number of persons for speeches.

Judge H. Willis Bland, an honorary guest, made a few appropriate remarks on the honesty of the profession, and paid a

splendid tribute to the host, Dr. Noack, whom he regarded as a meat inspector of sound judgment.

Dr. J. W. Sallade spoke tersely of the importance of veterinarians standing together and making cleanliness a rule in meat markets.

Dr. S. G. Burkholder, a charter member of our association, now a prominent physician of Reading, was next called upon by the toastmaster to explain why he considered it wise in his estimation of leaving our honored profession to select the practice of medicine.

Dr. Burkholder nobly responded, saying in part that although he now ministers to the wants of the human family, he still has the veterinary profession at heart, and always cherishes the day of session of this organization, and endeavors to be present if possible, seldom missing a meeting, feeling that the medical man is a close brother to the veterinary practitioner.

He compared the diseases of animals with those of men, and urged that the doctor and veterinarian should co-operate in the study especially of infectious diseases, transmissible from animals to men and vice versa.

Other parties called upon were John W. Rouch, superintendent of the Reading *Eagle*; Dr. F. H. Schneider, Philadelphia; Drs. Kohler, Huyett, Ferusler and others.

To the regret of all present, Drs. Marshall, G. Allen Jarman and Frank Mackie, the two latter of Baltimore, Md., made a hasty retreat immediately after lunch to catch the train for Philadelphia to make proper train connections for Baltimore.

A vote of thanks was tendered our visiting brethren in fleeing from other yokes of duty to assist so ably in making our meeting a grand success.

The next meeting of this organization will be held at Reading, June 17, 1908.

W. G. HUYETT, *Recording Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The March meeting of this association was held in the lecture room of the New York-American Veterinary College, 141 West Fifty-fourth street, New York City, on the evening of March 4, with the President, Dr. Grenside, in the chair.

There were 38 members and visitors present. The minutes of the previous meeting were read and approved.

Dr. H. D. Gill, of New York City, addressed the association on the subject of the "Disposal of Glandered Horses." He explained the reason for bringing this subject before the meeting was that recently veterinarians and others had been subjected to arrest and fined for leading glandered subjects through the streets, while they were actually conveying such animals to the dead-dock to be destroyed. He believed that the Board of Health ordinance which provides for the destruction of glandered animals on the premises or in the streets, where they are generally allowed to remain for hours or even a day or more, surrounded by a morbid crowd, was a prolific means of deseminatation of the disease not only to other susceptible animals but to man.

Dr. Gill contended that the danger from leading glandered horses to the dead-dock was far less than the killing of the animals in different parts of the cities as is now done. The subject was freely discussed by many of the members, all of whom indorsed Dr. Gill's stand in the matter. Dr. Ackerman suggested a slaughter house for glandered horses, the same to be under the supervision of the Board of Health. The glandered subjects to be conveyed to this place in closed ambulances. This suggestion was indorsed by many present.

It was regularly moved and seconded that the President appoint a committee to draw up suitable resolutions on the disposal of glandered horses, which this association could present to the Board of Health as a recommendation. Carried.

The President appointed Doctors Gill, Ackerman and Mangan to act on this Committee.

Dr. D. J. Mangan, of New York City, read a very interesting case report on "Rabies in a Horse." He detailed very carefully all the symptoms presented during his observation of the case, which extended over a period of about eight days. Doctors Patrick Burns and W. Reid Blair were called in consultation, both of whom agreed that Dr. Mangan's diagnosis was a correct one. Upon the death of the animal, the head was taken to the laboratory of the Board of Health where a microscopic examination demonstrated the presence of the Negri bodies in great abundance. The sub-dural inoculation of guinea pigs also gave positive results. This report will be published in the AMERICAN VETERINARY REVIEW.

Dr. C. N. Darke presented a case report of a peculiar case of Azoturia, which was of special interest on account of the lapse of time before the characteristic symptoms were presented.

The Secretary read a letter from Secretary Lyman of the American Veterinary Medical Association, inviting this association to appoint a delegate to the annual meeting of the A. V. M. A., to be held at Philadelphia next September. Communication laid on the table until the June meeting.

Dr. Hazle, of Pleasantville, N. Y., addressed the meeting, and asked co-operation of this society in the prosecution of illegal practitioners. He explained his personal work along this line and stated that the District Attorney had already agreed to assign one of his assistants to prosecute the cases if the evidence gathered was sufficient to reasonably expect a conviction. After a discussion of this matter by a number of the members, it seemed to be the consensus of opinion that this association should give moral and financial support to Dr. Hazle in his efforts to prosecute the illegal veterinarians in New York City.

It was regularly moved and seconded that this matter be referred to the Prosecuting Committee, with power to act. Carried.

It was regularly moved and seconded that this society commend Dr. Hazle for his work and that he be assured of the support of this association in every way. Carried.

On motion duly carried, the President was instructed to appoint a committee to draw suitable resolutions on the death of our late President, Dr. Roscoe R. Bell. Drs. Robertson, Ackerman and Blair were asked to act on this committee.

The meeting adjourned at 11 p. m.

W. REID BLAIR, Secretary.

MINNESOTA LIVE STOCK BREEDERS' ASSOCIATION.

Minnesota breeders appreciate veterinary co-operation, as is evidenced by the subjoined resolution recently adopted by the Live Stock Breeders' Association of that state:

VETERINARY CO-OPERATION.—WHEREAS, The best veterinary colleges are now giving considerable live stock instruc-

tion in animal husbandry, live stock judging, feeding, breeding, etc., in their veterinary courses, and even erecting live stock pavilions for instruction work of this kind, and

WHEREAS, Veterinary organizations are urging their members to get in closer and more helpful relations with the live stock interests, particularly in the matter of control work with infectious and preventable disease, and in work for the improvement of live stock, therefore be it

Resolved, That we express our appreciation of this movement in the veterinary profession and gladly welcome this assistance in our efforts to build up live stock interests.

ENDORSEMENT OF THE WORK OF THE LIVE STOCK SANITARY BOARD.—WHEREAS, The protection of the health of our live stock is a matter of the greatest importance on account of the intimate relation existing between animal and human wealth and because of the great financial losses which may be prevented by wise sanitary measures, and,

WHEREAS, We believe that the Minnesota State Live Stock Sanitary Board has been doing very efficient, economically managed and valuable work to this end, therefore be it

Resolved, That we hereby express our appreciation of the work of this board in protecting the health of our families and the values of our live stock. Be it further

Resolved, That we especially commend the policy of education and helpful co-operation which has been carried out by this board in connection with prevailing infectious diseases of domestic animals. Be it further

Resolved, That we, as members of the Live Stock Breeders' Association, hereby promise our personal support and co-operation in this work and all reasonable assistance to the board when it comes before the next Legislature asking for needed financial support. Be it further

Resolved, That, as an association, we call upon our Legislature, at its next meeting, to support this work as liberally as available funds will permit.

APPRECIATION OF FEDERAL CONTROL WORK.—WHEREAS, Our federal Congress has appropriated liberally for work under the Bureau of Animal Industry for the eradication of Texas Fever from the cattle, and for control work with sheep scab and mange among the flocks and herds of the West and Northwest, and has appropriated also for investigation and control work with other infectious diseases of live stock, therefore be it

Resolved, That we hereby express our appreciation of this generous and wise appropriation for protecting the health of our live stock and the prosperity of live stock interests.

APPROVAL OF THE WORK OF THE STALLION BOARD.—
WHEREAS, The Minnesota Stallion Registration Board has nearly completed its first year of service, and

WHEREAS, We believe this work has been wisely and well done and a creditable beginning made in this important work, therefore be it

Resolved, That we express our confidence in this board and appreciation of its great usefulness, and be it further

Resolved, That we promise our individual support and co-operation with this board in its endeavors to secure better horse breeding stock for our State.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting of this association was held on the evening of February 26, 1908, at Oppenheimer's Hall, 514 Ninth street, N. W., Washington, D. C., with the President, Dr. John Lockwood, in the Chair. There was the usual good attendance. Drs. B. T. Woodward, C. C. Walker, and R. Humphries attended as visitors.

The subject of the treatment of center crack was brought up by Dr. Hulbert Young, who related the characteristics of a case occurring in his practice, and his method of treatment. The matter was discussed at length by Drs. J. P. Turner, C. E. Dornheim, and John Lockwood, and many interesting points were brought out.

F. M. ASHBAUGH, *Secretary*.

MARYLAND STATE VETERINARY MEDICAL SOCIETY.

The regular monthly meeting of the above society took place at Baltimore, Md., February 20, 1908. Unfinished business was transacted.

Drs. Dougherty and Jarman suggested that young material be placed at the helm. The election of officers for the ensuing year resulted as follows:

President—Dr. H. A. Meisner.

Vice-President—Dr. F. M. Keller.

Secretary and Treasurer—Dr. H. H. Counselman.

Board of Censors—Drs. Wm. T. Dougherty, G. Gill, G. A. Jarman, F. H. Mackie, H. Bye.

Several interesting papers were read by Dr. H. A. Meisner, the newly-elected president, on the psychology and brain development of the horse, concerning the making of good trotters, pacers and runners. The above papers were discussed by Dr. Dougherty and others.

The Veterinary Medical Society heretofore has been one of negligent character as to meetings and attendance until a recent banquet held in Baltimore, at which a sumptuous repast was served. This association had not held a meeting for two years. The society was on the verge of disbandment until our veteran promoters and organizer made a suggestion and took the helm, and to him undoubtedly our present success is largely due. The society is now at work on legislative business and trying hard to have the Legislature pass a law regulating tuberculosis in cattle, and frame up a new law regulating the practice of veterinary medicine. We are in hope that the society will keep up the good work and that the new material will work hand in hand to prove the society one of the best ever.

H. H. COUNSELMAN, *Secretary*.

"I cannot speak too highly of your interesting and instructive publication."—(*H. S. Wende, V. S., Tonawanda, N. Y.*)

"I find each journal containing reports of a great many interesting as well as instructive cases."—(*R. G. Flowers, Veterinarian, Fort Worth, Texas.*)

WHAT DID HE GIVE?—The druggist had just filled a veterinarian's prescription.

"I'd like a copy of that prescription," said the customer.

"Guess you'll have to get it from the doctor," replied the druggist; "I could never read his writing."

NEWS AND ITEMS.

THE annual banquet of the Veterinary Alumni, N. Y. U., took place on the evening of March 31st.

THE next civil service examination for Veterinary Inspectors, B. A. I., will occur April 15, 1908.

FORTY-THREE thousand cans of milk, each can containing forty gallons, comes into New York every day.

CAREFUL estimates of the number of horses in New York place the total at something like 100,000 head.

VETERINARIAN C. A. LOXTON has been appointed Assistant Government Veterinary Surgeon under Chief Veterinarian Desmond in South Australia.

R. T. WHITTLESEY, D. V. S., one of the oldest practitioners of Los Angeles, who has been in ill health for some time, is now convalescing rapidly.

DR. GEO. H. LEE (McGill University, '92), of Boston, Mass., died February 3, 1908. Dr. Lee was veterinarian to the City of Boston and well known among horsemen the country over.

NEW regulations governing the federal meat inspection service, going into force April 1, 1908, have been promulgated by the Bureau of Animal Industry, U. S. Department of Agriculture.

THE San Francisco Veterinary College announces that the next session of that school will be extended from six months to a seven-month course, and that the succeeding sessions will be lengthened until the course is nine months each year.

PRESIDENT W. H. DALRYMPLE, A. V. M. A., was one of the speakers at a meeting of the East Baton Rouge Parish Medical Society, held at the Louisiana State University on the evening of March 28, His Excellency, Governor Blanchard, presiding.

VETERINARIAN ROBERT A. ARCHIBALD, Vice-President of the A. V. M. A., and President of the State Board of Veterinary Medical Examiners of California, has been appointed to the Chair of Bacteriology in the Oakland Medical College, Oakland, Cal.

A TOILET club for dogs has been opened in one of London's most fashionable streets, where they may be bathed and have their coats trimmed in the most approved style. There, too, they may be manicured, and any grumbling molar will be extracted.

SECRETARY LYMAN, A. V. M. A., RETURNS TO HARTFORD.—Dr. R. P. Lyman, a member of the teaching force of the Kansas City Veterinary College during the session just closed, has returned to Hartford, Conn., where all communications for him should now be addressed.

COW *vs.* MILKMAN.—A Philadelphia lawyer maintains an admirable stock farm on the outskirts of the Quaker City. One day last summer some poor children were permitted to go over this farm, and when their inspection was done each of them was given a glass of milk. The milk came from a \$2,500 cow.

"How do you like it, boys?" asked an attendant, when the little fellows had drained their glasses.

"Fine! Fine!" said one youngster, with a grin of approval. Then, after a pause, he added: "I wisht our milkman kept a cow."—(*Harper's Monthly.*)

CHICAGO TO HAVE A \$250,000 VETERINARY COLLEGE.—Plans are now completed for the erection in Chicago of the largest and best-equipped veterinary college and hospital in America to be under the control of the state of Illinois, on a site which has been given by the Union Stockyards and Transit Company under a ninety-nine year lease at a nominal rental.

The probable cost of the buildings is \$250,000, which amount has already been obtained by private subscriptions, thus securing the full realization of the scheme. The Legislature of Illinois has appropriated \$35,000 towards the maintenance of the hospital.

The college is to be affiliated with the University of Illinois. Millions of animals are received at the stock yards every year, and it is claimed that the new college will be unequalled in its ability to secure material for clinical work. The promoters of the project say that nothing will be left undone to make this the greatest seat of veterinary learning in the entire world. Credit for the fruition of the idea is given to Dr. O. E. Dyson, consulting veterinarian and former inspector in charge of government inspection at the stock yards, and Arthur G. Leonard, vice-president and general manager of the stock yards company.

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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, March 15, 1908.

TREATMENT OF PNEUMONIC MYOCARDITIS.—Among the complications that practitioners may meet during an attack of pneumonia, myocarditis is one of rather common occurrence, and that careful practitioners always watch for with anxiety. It is often the very complication which is to decide on the result, happy or fatal, in the treatment of the pathological condition existing in the lungs. Indeed, on this account, the opinion of such authority as that of Prof. Cadiot on the subject of the *treatment of pneumonic myocarditis*, as published in the *Recueil* and the *Revue Generale* cannot fail in being of great interest to our readers. Let us resume it.

Cardiac troubles observed during the course of pneumonia in the horse are manifested from the beginning and for two or three days by the rapidity and violence of the systoles, acceleration of the pulse, increase in dyspnea and apparition of phenomena of anxiety and oppression. Then come loss of rhythm and weakness in the beatings of the heart, diminution of the sounds and a modification in the character of the pulse; which, while it remains accelerated, becomes weak, filiform and difficult to feel. This complication, observed especially during the stage of acme, may also be present in any of the periods of development of the pneumonia. It may be accompanied with lesions that are ex-

tensive or limited or in condition of regression. Most often the lesions are localized to the cardiac muscle, which is inflamed, infiltrated, discolored, ecchymosed and yellowish in some places. This acute myocarditis is not due to the influences of the pulmonary inflammations resounding upon the heart, but rather to the action of the infectious agents or their toxines upon the myocardium.

In other cases this latter organ is unaltered or only slightly affected. This form is to be considered as the result of the complicated disorders occasioned by the pneumonic toxics upon the innervation of the heart; and principally to paralysis or paresia of the branches coming from the pneumogastric nerve. In the living animal the differentiation between myocarditis and cardiac troubles of nervous origin remains impossible. The presence of cardiac troubles, whatever may be their origin, makes the prognosis always more serious, and the degree of their acute condition makes the pneumonia more serious. Accelerated pulsations, very weak or arhythmic, indicate an alarming condition; strong pulse, moderately accelerated, except in pneumonias of strangles, constitutes a favorable symptom.

* * *

Cardiac troubles in pneumonia patients are treated by digitalis caffeine or ether. *Digitalis*, which has an efficacious action in some chronic cardiopathies, is almost inoperative in acute disease accompanied with asthenia of the myocardium. Its effects are little accused or null in pneumonias with great hyperthermia; and the continuation of its administration, even with increase in the daily doses, give no favorable results, and may give rise to serious intoxication. This last is indicated by palpitations, change in the rhythm of the pulse, which becomes weak or difficult to detect, the mucous membranes become pale, the extremities cold, and colics make their appearance. Accoutumancy does not exist for digitalis. Accumulation may produce the sudden manifestation of toxic accidents, so much more dangerous that they cannot be remedied. In horses the daily dose must be of three to five

grams and its administration must be arrested every two or three days. The fact of an animal supporting daily doses of 8, 10, 12 grams, continued, must be evidence of the bad quality of the drug. The use of digitalis demands, therefore, a certain amount of attention, and no useful effect can be expected in cases of acute myocarditis. *Cafeine* is given to horses in hypodermic injections at the dose of one to two grams, repeated two or three times in twenty-four hours, its solution in water being made by the addition of benzoate of soda. In infectious neuro-myocarditis, caffeine varies in its effects, which, sometimes are weak or null. It is useless when the symptoms are severe, the circulation very accelerated, or the myocardium very weak.

Ether is used in injections, subcutaneously, or in the muscles. From ten to twenty-five grams each and repeated three or four times a day. It is used with advantage in adynamic pneumonias, complicated with cardiac accidents and with tendency to syncopæ. The effects are immediate, but often temporary and insufficient. Its activity is increased by the addition of *Camphor*. This is a choice cardiac stimulant in neuro-myocarditis. It constitutes an excellent remedy in pneumonias, when there occur serious circulatory disorders by asthenia of the heart, when the organ gives up, overtaxed, or affected in the muscle itself or in its nervous apparatus. Camphor is used in hypodermic injections, dissolved in ether or oil, or again in both mixed in equal parts. The solutions are prepared in weak strength, to the tenth, or in strong, to the fifth or the quarter. In the twenty-four hours from 60 to 100 grams of the strong camphorated oil is given in three or four doses. Equal or superior doses to 10 grams, give generally rise to lasting inflammatory swellings which abcede later. Hence the indication to make these injections on the lateral faces of the neck, under the chest, or, on a level with the mass of the extensors of the forearm. Absolutely harmless, the treatment depends on the condition of the heart and pulse; the injected doses shall be reduced as the symptoms will subside, and on the contrary will be increased when the pulse becomes more accelerated and weaker.

CAN THE EPIPLOCEELE OF CASTRATION TAKE PLACE IN THE HORSE?—This is a question that some time ago was answered by the negative in the *Journal de Medecine Veterinaire and Zootechnie* of the Lyon Veterinary School. Prof. Forgeot, adjunct to the chair of anatomy, making the answer, said that from his observations, the so-called epiploic hernia of castration were merely hernias of the small mesentery and that consequently the description of the disease was to be taken off from classical works, as if it is possible for it to occur in man, pig and dog, it could not in horses on account of the anatomical disposition that it presents, and which is entirely different. Indeed, said Mr. Forgeot, when one knows well the disposition of the omentum, which, attached to the great curvature of the stomach, extends to the sub-lumbar region, where it ends on the end of the folded origin of the floating colon; it is evident that this delicate sheet cannot reach the superior inguinal ring and *a fortiori* form a hernia. Its dimensions do not allow it. The great omentum measured on a fresh cadaver and stretched as much as possible, forms at the great curvature of the stomach a border 20 centimeters wide, which is far from the 65 or 70 centimeters which, in a straight line, exists between the great curvature of the stomach and the superior inguinal ring. And again, continues Mr. Forgeot, is it possible for the great omentum, loose from the sub-lumbar region, to come out of the inguinal canal? In making post mortems the omentum is always found in its normal position back of the stomach; it is even rare to see the inferior border reach the xyphoid cartilage, and it is never seen loose from the sub-lumbar region. If it is not the omentum that makes hernia, in cases where hernias occur, what is it? For the French anatomist, it is the small mesentery, and the conclusion is that those so-called epiplois hernias are only hernias of the small mesentery!

* * *

In the *Annales* of Bruxelles of January, Director Degive takes up the subject and refutes it. Indeed, says he, even in admitting the anatomical dispositions given above, there is one thing that

will remain. And that is the fact that so many good observers have described, and many practitioners have met, with inguinal hernias of the omentum; and as it is a possible complication of castration with uncovered testicle, there is no doubt that epiploic hernias of castration will always remain a reality, whose existence, perfectly and absolutely certain, cannot be ignored. For himself, Degive affirms positively to have seen it, during or immediately after castration or even quite a long time after the operation. And again, can an error be made? Can one organ be mistaken for another? Is not the very peculiar aspect of the epiploic sheet, so thin, perforated by so many holes, with its *dentelle* like appearance, such that it could be taken for the colic or small mesentery, so evenly thick and never perforated. It is because of these characters of the membrane protruding, that the name epiploic hernia has been given to this form of lesion, a name that will certainly remain for it. In conclusion of this reply, Director Degive relates concisely one case of epiploic evisceration of castration in a horse operated for abdominal cryptorchidy, and also one of chronic epiploic hernia; and terminates in saying that cases of epiploic hernias are certainly possible and that the inguinal hernia of the small mesentery remains only a pure supposition not likely to be confirmed by observation unless under some specific condition.

I do not know if hernias of that nature have been observed by some of our friends, but I know that years ago a case of hernia of castration occurred in an animal upon which I was operating and that no doubt could be entertained as to the nature of the portion of tissue that I excised. It was a portion of the omentum.

* * *

“CONTRIBUTION TO THE STUDY OF THE ETIOLOGY OF INFECTIOUS PNEUMONIA.”—Under the title “*Contribution to the Study of the Etiology of Infectious Pneumonia*,” Prof. E. Tabusso of the Royal Veterinary School of Turino, has published in the *Revue Generale de Medecine Veterinaire* the relation of four

cases of infectious pneumonia, with hemorrhagic manifestations, acute progress, general characters of a severe form of septicæmia, which were observed in a few days at the Turino school.

The three first cases came from one stable, where, after severe measures of prophylaxy to arrest the spreading of the disease, there were observed in the days following, various cases of severe enteritis, with fever, anorexia, adynamia, yellow coloration of the visible mucous membranes, troubles of the circulation. The fourth case came from another stable, far from the first, and had no contact with the others.

The four cases presented to the clinical point of view numerous similarities, such as, during life, unilateral or bilateral pneumonias, rather high fever, anorexia, adynamia, nasal hemorrhage, death between twenty-four and forty-eight hours. At the post mortems, the lesions presented also similar aspect: there was hemorrhagic pneumonias, more or less extensive; œdema of the bronchial tree, high congestion and hemorrhagic effusion (in one case 10 or 12 litres), congestion and hypertrophy of the spleen, blood with the appearance of that fluid in cases of asphyxia.

Careful examination of the manifestations suggested researches, which permitted the detection of a microbe, the *Pasteurella equi* of Lignieres or bacillus equisepticus, as per experiments carried out on rabbits, guinea-pigs and horses. The author's conclusions are: 1st—That the morphological, cultural and pathogenous characters of the microbe found in the four cases of infectious pneumonias show that it was identical to that of the *Pasteurella equi* of Lignieres. 2d—With it there were also another microbe having an evident pathogenous action. There were no hematozoar parasites. The *pasteurella* was the specific cause of these cases of pneumonia. 3d—This, without settling definitively the question of the etiology of infectious pneumonia, permits one to say that in some given condition of virulency or other circumstances, the *Pasteurella* may give rise to infectious pneumonia in horses. 4th—From the consideration of the fact that in short time, three cases were suddenly affected with a fatal form of the disease, and again that in the same stable, after prophylac-

tic measures were taken, other less serious but still infectious forms of disease were observed, it appears that pasteurillic infection may assume diffused and serious forms. 5th—The series of experimental observations made agree with the primitive constations of Lignieres on the *Pasteurella equi*. 6th—The question of the etiology of infectious pneumonia in horses is more than ever demanding attention and investigation.

* * *

Years ago, when the sign of Strauss was made known as a sure means of diagnosis for glanders, I remember trying it and having failed in obtaining the positive result that I expected after the third day, when I had injected in the abdominal cavity of a guinea pig some nasal discharge from a horse suffering with glanders. Since that day I learned to resort to the mode of diagnosis and also of its peculiarities.

In the February number of the *Annales of Bruxelles*, Prof. Lienaux has an article which has brought back to my mind the few notes just alluded to. The Belgian professor entitles his article, *Remarks on the appreciation of the Strauss sign and the relative value of cultures and inoculations in the diagnosis of glanders*.

He had a case of doubtful cutaneous glanders, where only few bacilli had been detected at the microscopical examination of the pus. But even then this was not satisfactory and other laboratory methods of diagnosis were necessary. Eight guinea pigs were inoculated by cutaneous scarifications. In six cicatrization followed on the fourth day, and in two there were ulcerations. This result shows the evident necessity of experimenting on several animals and with making several scarifications. The male pigs of these experiments were then injected in the peritoneum, with the object of testing Strauss reaction. Two had no orchitis after the third nor after the fifth day. And yet it is written in *Microbian Diseases* of Nocard and Leclainche: "In male guinea-pig, this inoculation is followed, after the third or the fifth day with swelling of the testicles, which become prom-

inent, the region being painful, the skin of the scrotum red, then purplish, adherent to the deep structures under; and towards the eighth or tenth day, these conditions are extremely marked and the animal dies ordinarily in twelve or fifteen days or sometimes in four or eight days." These results were puzzling.

Two other male pigs were inoculated and in neither had any sign of orchitis made its appearance on the fifth day. The pigs were then killed. On examining them at post mortem it was found that on the vaginal sheath they both had a single tubercle of glanders as big as the head of a pin, a lesion altogether insufficient to bring out the external signs of the characteristic orchitis of glanders. Two other pigs that had been inoculated on the same day were kept, and on the twelfth day only showed the orchitis and died twenty-two days after the injection. From these four pigs the presence of the bacilli of glanders were found in pure cultures with exudate taken from the vaginal sheath.

The conclusions are certainly valuable. No more than cutaneous inoculations, are peritoneal infallible. But for either, one negative result is not justifiable of a definitive conclusion. Again, the absence of the orchitis after the third or the fifth day must not be considered as proofs of the failure of the test or of the inoculation. One must wait and allow the eventual development of the lesions, which may have been very limited on the vaginal sheath, and if one cannot wait, as is often the case in general practice, post mortem of the subjects inoculated must not be neglected so as to judge of the presence or absence of alterations upon the peritoneum and specially the vaginal sheath.

In this present case other means of research were also resorted to and confirmed the diagnosis already made. In cases of doubtful aspect, cultures, especially on potatoes, and experimental inoculations must always be carried out simultaneously.

* * *

MILK TRADE AND PROPHYLAXY OF BOVINE TUBERCULOSIS.—

In my chronicle of February last I only mentioned among my bibliographical notes the receipt from the German publishing

house, Richard Schoetz, of Berlin, of the report that Prof. Ostertag presented at the Congress of La Hague.

Die Milchwirtschaft und Die Bekämpfung Der Rinder Tuberculosis (Milk Trade and Prophylaxy of Bovine Tuberculosis) deserves more consideration than the short notice alluded to, which had to be such on account of want of space. I may be allowed to glance over it again and resume its contents.

Remarking that tuberculosis is a disease that attacks bovines very frequently, and alluding to the fact that tuberculous cows often give milk dangerous to man, it becomes evident that the milk trade is much interested in seeing that proper measures should be taken to arrest the progress of the disease, which, unfortunately, is always increasing.

The losses resulting from that disease are enormous and the prophylaxy of tuberculosis is of the highest importance. But yet the method to resort to to obtain it is uncertain.

The first attempt made with this object goes back to 1890, when Koch discovered tuberculine. Actually there are three methods recommended, that of Bang, that of the author and the vaccination of Behring.

Tuberculine test being the surest way to diagnose the disease, the ideal should be to kill all reacting animals. It was tried, says the author, in Massachusetts from 1894 to 1898, and in Belgium from 1896 to 1897. But after that it was given up.

The method of Bang has given very good results but one has to depend on the good will of the owners, who often are afraid of the long time required to bring the result to a satisfactory end.

The method of Ostertag, consisting in isolating the animals recognized as affected by open lesions by clinical and bacteriological examinations. Calves are raised away from all contagion. Resorted to in numerous German districts, this method has given excellent results. It is, of course, completed by the tuberculine test applied to calves that are raised away from all infectious or contagious exposure. The first results obtained with Behring's method have been published since 1902. By the vaccination,

bovines acquire a certain degree of resistance to bovine bacilli. The process has been experimented by many and demands modifications. Actually only two methods ought to be resorted to, Bang's or Ostertag's.

* * *

I received a few days ago two numbers of the *Weekly Courier*, an agricultural journal published in Tasmania. If rabbits give much material for complaints in that journal, a good veterinarian, Dr. E. A. Weston, takes the opportunity offered by its pages, to write a long and strong plea in behalf of veterinary science and in favor of the veterinary profession, which, if I read right, is rather in need of earnest and able workers in that part of the world. Dr. E. A. Weston reviews the subject of veterinary medicine from its origin, and after considering it and comparing it, in its various status in European countries and in America, he alludes to remarks expressed by our friend Leonard Pearson and concludes: "Yet, with all this evidence of enlightenment, Prof. Pearson tells us that America is more than eighty years behind Germany, France and the lesser European countries—if America is eighty years behind the more advanced countries, what can be said of Tasmania, which accords neither legal recognition, nor protection to the veterinary profession, which has neither officers, laboratories, nor experimental farms, where the diseases, from which thousands of pounds worth of stock die annually, can be accurately diagnosed, much less studied over a series of years with a view to their prevention. It is pretty certain that the veterinary profession in Tasmania is much in need of improvements.

* * *

Among the pamphlets that I have had lately figure a second preliminary announcement of the *International Congress of Tuberculosis*. I have already in previous chronicle alluded to the opportunities that this great event offers to veterinarians in America and, as the requirements to become an active member

have been made known heretofore, it is unnecessary for me to say more at present.

From the Bureau of Animal Industry I have before me, "*Further experiments concerning the production of immunity from hog cholera*," by M. Dorset, M. D., C. N. McBride, M. D., and W. B. Niles, D. V. M.; then, "*Notes on experiments with blackhead of Turkeys*," by Cooper Curtice, D. V. S., and finally, "*The unsuspected but dangerous tuberculous cow*," by E. C. Schroeder, M. D. V., an excellent illustrated little pamphlet, which may be very useful to laymen, but which veterinarians can do well to read and appreciate, as very often those very cows which are less open to suspicion of being tuberculous are nevertheless most dangerous to the sanitary point of view.

I send my thanks to the Chief Veterinary Inspector of Maryland, Dr. G. Allen Jarman, for the eleventh report of the Live Stock Sanitary Board of that State.

* * *

NINTH INTERNATIONAL VETERINARY CONGRESS.—This grand meeting, which will take place at The Hague in September, 1909, is officially announced by the first circular of the committee. Placed under the high patronage of His Royal Highness PRINCE HENRY of the Netherlands, DUKE OF MECKLENBURG, the congress promises to be one of the greatest gatherings that has already taken place on these occasions.

The first circular gives the officers of the Honorary Committee, president, vice-presidents and members, the names of the members of the committee on organization, etc. The Executive Committee is represented by:

President—Prof. W. C. Schimmel, of the State Veterinary School, member of the permanent commission for the international veterinary congresses at Utrecht.

Vice-Presidents—Prof. M. G. de Bruin, of the State Veterinary School at Utrecht; M. J. Hengeveld, district veterinarian at Haarlem; Dr. J. Poels, director of the Sero-Therapeutical Institute of the State of Rotterdam.

General Treasurer—Prof. D. F. Van Esveld, of the State Veterinary School at Utrecht.

General Secretary—Dr. D. A. de Jong, director of the public slaughterhouse, member of the permanent commission for the international veterinary congresses at Leyden.

Second Secretaries—Dr. H. Remmelts, director-in-chief of the Government Export Meat Inspection Service, at The Hague; Prof. Dr. H. Markus, of the State Veterinary School at Utrecht.

Members—Lieut.-Col. A. Overbosch, chief military veterinarian at The Hague; H. M. Kroon, president of the Veterinary Society of the Netherlands at Deventer; Prof. J. J. Wester, of the State Veterinary School at Utrecht; Inspector C. A. Penning, of the Civil Veterinary Service of the Dutch East Indies, at Buitenzorg (Java), and makes the following statements:

1st—On account of the Medical Congress at Budapest, which will take place in 1909, the exact date of the Veterinary Congress will be published later.

2d—Information may be obtained from Dr. D. A. de Jong, General Secretary of the Executive Committee, at Leyden; Dr. H. Remmelts, Second Secretary of the Executive Committee, at The Hague, and Dr. H. Markus, Second Secretary of the Executive Committee, at Utrecht.

3d—Further details concerning the organization of the congress will be communicated as soon as possible after being agreed upon with the permanent commission for the international veterinary congresses.

4th—The Executive Committee has asked the members of the permanent commission to form "National Committees" in their respective countries, in order to contribute to the success of the congress at La Hague.

5th—The Executive Committee has entered into correspondence with the direction of the Society of the Sea-baths of Scheveningen, in order that the members of the congress should be able to profit during their stay in Holland as much as possible of this pleasant seaside resort.

A. L.

THE NEW YORK WORK-HORSE PARADE.

The Woman's Auxiliary to the American Society for the Prevention of Cruelty to Animals, has just issued its announcement of the Second Annual Parade and Competition, under the management of that whole-souled gentleman and horses' friend, Mr. Thomas F. McCarthy, secretary of the New York Team Owners' Association, which will take place on Madison square, Fifth avenue and adjacent streets below Twenty-third street, New York City, on May 30th.

Much credit is due the president of this association, Mrs. Cadwalader Jones, and her philanthropic associates, in their untiring efforts in behalf of the horse. Their accomplishments for the work-horse, and their methods of effecting them, are indicative of a thorough understanding of the problem with which they are dealing.

Their sole object is to better the work-horse's condition, and these ladies seem to be thoroughly cognizant of the fact that this can best be accomplished by an appeal to the pride of those owning, caring for and driving them, with a reward for those who merit it.

No entry fee is required, the officers receive no compensation for their services, and entries are especially encouraged from small owners. Men in the most humble circumstances, who have a horse as a means of earning their livelihood, are just as welcome as the richest firm with fine trappings. New harness or new wagon counts for nothing; but the horse must be in good physical condition, and the better he has been cared for the better is his chance of winning a prize, regardless of the "smartness" of the trappings.

Work-horses of all kinds may be entered except horses used for hacks or cabs. The Old Horse Class proved to be an extremely interesting feature of the parade of a year ago, and its incentive to prolong the usefulness of work-horses by good care and kind treatment will be productive of an inestimable amount of good in the future.

Horses that are dock-tailed, sick, lame or otherwise unfit for work, will be excluded from the parade.

On the occasion of the first parade, which took place on Memorial Day last year, the management had two veterinarians and two laymen as judges of each class, who examined and judged the horses in the early morning, at the point of assemblage, before the parade started uptown toward the reviewing stand. This seems an excellent method, for by it opportunity is afforded the judges of excluding horses that are not qualified on account of lameness, poor physical condition or other causes. It is not necessary that they be sound in a technical sense, but serviceably sound and experiencing no discomforture through bearing harness or working.

Eliminating at this time any such disqualified horses that may find their way into the ranks from lack of judgment on the part of their owners, saves the drivers the embarrassment that would accrue from being put out of line after the procession starts, and also saves them their time. Every horse not disqualified from said causes will receive a ribbon of some kind. Every blue ribbon winner will receive a brass medal as a permanent ornament for the harness.

Again, as a stimulus for prolonging the usefulness of work-horses, by good care and kindness, the older a horse is in each class, the higher he will be graded in keeping with his condition. On the same principle, prizes or blue ribbons will not be given to green horses. Docile disposition will be taken into consideration by the judges, as indicating kind treatment. Color does not count, even in respect to matched teams, and harness and vehicles only count in respect to proper weight and comfortable fitting.

THE REVIEW is pleased to have an opportunity to commend the kind and humane spirit behind the work-horse parade. The consideration for the welfare and comfort of the work-horse, so well exemplified by this association of gentle-women in the American metropolis, excites our admiration and commands our respect.

PHILADELPHIA AND WASHINGTON.

If we stop to take into consideration the fact that two of the most representative bodies of scientific workers in the medical world, viz., the American Veterinary Medical Association and the International Congress on Tuberculosis, will both assemble September next, the former at Philadelphia, Pa., and the latter at Washington, D. C., not only upon dates that do not conflict but which are convenient for those who desire to attend both meetings, we are suddenly brought to a realization of the fact that the veterinary profession is undoubtedly upon the eve of the greatest opportunity in its history, at least in so far as our present knowledge of comparative pathology can be applied for the benefit of man.

Although it is true that the members of the organizations alluded to belong to distinct professions, yet, in a very real and broad sense, they are all medical men who are studying, and are concerned in, much that is in common to their respective professions. In fact, the two branches of the medical profession—human and animal medicine—are inseparable. We even venture the prediction that the time is coming, and it may not be so very far off, either, when we will not hear so much about human medicine in contradistinction to veterinary medicine but that medical men, physicians of the human system as well as veterinary practitioners, will recognize the fact that they cannot get away from comparative medical science as the very foundation of all the superstructure.

The paramount and far-reaching importance of the subject of animal and human tuberculosis as well as the great opportunity offered at this time for the advancement of comparative medical science and the promotion of the well-being of mankind must appeal to every true veterinarian, and brings a corresponding responsibility to the profession.

Although desirable, yet it is not so essential, that the attendance of veterinarians at the International Congress on Tuberculosis be so large as it is that the profession be represented by

investigators and the ablest specialists of our calling so that the report of the proceedings shall be a summary of the best knowledge available in the veterinary profession. Many will attend, however, for the purpose of learning rather than of imparting knowledge.

According to the present schedule of dates there is one week intervening between the close of the A. V. M. A. convention at Philadelphia and the opening of the congress in Washington. This fact has been pointed out to the executive committee of the A. V. M. A. by a number of delegates who desire to attend both the convention and the congress with a request that the A. V. M. A. meeting be moved up one week so as to open on September 15th instead of on the 8th, the congress not beginning its deliberation until the 21st. It is believed that if the proposed change of date be made that it would increase the attendance at both meetings. A postal card vote is being taken of the members of the A. V. M. A. as to whether the change of date shall be made or not. The result will be announced in the next issue of the REVIEW.

It is not, however, too early for veterinarians and their families to make plans for September. The Kansas City convention was a great meeting never to be forgotten but we do not believe that there is a man among us who does not look forward to still greater things at Philadelphia.

Make your plans now to attend the 45th annual meeting of the A. V. M. A. at Philadelphia and give yourself time to visit Washington and attend the first International Congress on Tuberculosis to be held in America.

MEAT AND MILK HYGIENE IN THE SOUTH.—Dr. W. H. Dalrymple is one of the members of our profession who evidently believes that the veterinarian should keep in close touch not only with agricultural and live stock interests but also in everything that concerns the health of the human population.

At the third annual conference of health officers of Louisiana, held under the auspices of the State Board of Health at Alexandria, La., in April, Dr. Dalrymple discussed the subject of meat and milk hygiene, illustrated with the stereopticon, in his usual able and interesting manner. The press of the state gave wide publicity to his paper, which has since been published in full in a small brochure. Work of this character cannot help but be productive of good results and should be more generally undertaken by veterinarians.

THE Special Report on Diseases of the Horse, Bureau of Animal Industry, U. S. Department of Agriculture, has proved to be one of the most popular publications ever issued by the government, the total editions approximating 900,000 copies.

RABBITS *vs.* MUTTON IN AUSTRALIA.—Up to the beginning of December 918,000 crates of rabbits, totalling about 23,000 tons, had been received in London during 1907, and the market for mutton was never so bad as it is now. It is the fostering of the rabbit industry which decimates the pastoral industry. Between these two there can be no compromise. It is sheep or rabbits. Under which flag will pastoralists fight?—(*Melbourne Pastoralists' Review*.)

A DEER WHITE AND DEAF.—Speaking of blindness, deafness and dumbness among cats and dogs, Dr. H. D. Gill, the veterinary surgeon and horseman, told incidentally of a remarkable wild animal, a deer, that was once encountered by two friends of his who were hunting near Moosehead Lake in Maine. Out with a guide, the hunters came to a spot from which they could see within shooting distance four deer grazing, one of the four being white, an albino. The hunters fired and shot two of the deer of natural color, the third one at the report of the guns springing away to safety, while the white deer remained stock still. The wind was toward the hunters and they had not been heard or scented, and apparently the white deer had not heard the report of the guns. But in a moment it turned its head and then it bounded away after the other surviving deer. It seemed clear to guide and hunters that the white deer was stone deaf.—(*N. Y. Sun*.)

ORIGINAL ARTICLES.

THE CONTROL OF AN OUTBREAK OF ANTHRAX.*

BY SAMUEL H. BURNETT, D. V. M.

New York State Veterinary College, Ithaca, N. Y.

Among the infectious diseases affecting the domesticated animals in this state anthrax occupies a prominent position. Though confined to areas of small extent as compared with tuberculosis, it has caused severe losses in the areas in which it is prevalent. Because of the high percentages of fatalities among the animals contracting the disease and its rapid course, anthrax is much dreaded by stock owners. This disease also offers to the sanitarian one of the most trying and difficult problems with which he has to deal. The peculiarly resistant nature of its specific cause renders it one of the most difficult diseases to eradicate once it has gained a foothold.

There are several localities in the state from which more or less extensive losses have been reported. Among these a portion of St. Lawrence County has suffered by far the most extensively both in the number of cases and the number of farms affected.

From the extent and the distribution of cases of anthrax during the past few years there seems no doubt that the disease has existed in certain parts of St. Lawrence County for several years. The data concerning the number of cases and the farms affected during different years are incomplete. It is known that during 1904 there were 12 farms affected with more than 30 fatal cases. In 1901 it is said that 3 farms, and in 1902 and 1903, 6 farms in each year were affected. For 1905 only 7 farms are reported as having anthrax. The reports for 1901, 1902, 1903 and 1905

*A paper presented to the N. Y. State Veterinary Medical Society at its last Annual Meeting.

are obviously very incomplete. There are reported cases prior to 1901, some of them serious. A case was reported by Dr. Walmsley, of Massena, N.Y., from Coles Creek in the town of Louisville. Twenty-three years ago, so Dr. Walmsley was informed, a farmer lost 6 cows, two soon after turning out to pasture, the other four some time in June and July of the same year. The cattle were apparently well in the morning, but at night were found dead with blood oozing from the nostrils and anus. Several neighbors also had losses the same year from what seemed the same disease. At this time there was a tannery* in operation at Chases Mills about two miles distant. During 1906 there were 170 fatal cases of anthrax of which 33 were in horses, 123 in cattle, 11 in sheep and 3 in hogs. Eight horses and 14 cattle were sick and recovered. Cases of anthrax occurred on 84 different farms. In the town of Waddington there were 13 cases on 7 farms, in Madrid 18 cases on 9 farms, in Norfolk 94 cases on 40 farms, in Potsdam 1 case on 1 farm, in Stockholm 33 cases on 14 farms, in Louisville 32 cases on 12 farms, and in Brasher 1 case on 1 farm. The percentage of cases on the affected farms is, as nearly as could be determined, 14.64 in horses, 7.81 in cattle, and 3.03 in sheep.

To be successful any method of combating anthrax must be based on the life history of the specific cause and the ways by which the germ is spread from one animal and place to another. Anthrax is caused by *Bacterium anthracis*, a rod shaped organism from $\frac{1}{4}$ u in length and about 1 u in width, *i. e.*, it takes from about 650 to 2,500 of these placed end to end to make a linear inch. These rods have square ends and as found in the bodies of animals are surrounded by an envelope or capsule (Fig. 1). Under certain conditions spores which are very resistant to harmful conditions or agents are found within the rods. In artificial cultivation the anthrax germs grow only in the presence of air and form spores readily. Anthrax bacteria grow read-

* There has been no tannery in this region for several years, about twenty, I was told. This is interesting, as tanneries have been the usual starting points of outbreaks of anthrax in this country.

ily (Koch) on potato, infusions of hay, mashed barley, mashed wheat, pea straw, leguminous seeds and numerous dead plants when sufficient water is present. Consequently they may grow and develop outside the body, *e. g.*, in swampy places (Koch). Cow dung forms a suitable culture medium for the growth of the anthrax bacteria (Kitt). It seems probable from investigations made that these bacteria may multiply and produce spores

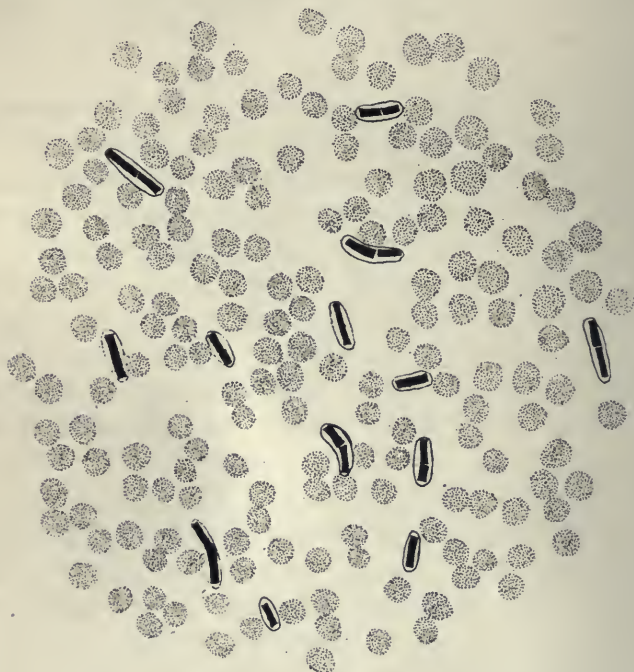


Fig. 1. Blood of cow containing *Bact. anthracis*. Smear made two hours before death. Jenner stain. $\times 650$.

during hot weather in swampy soils. In the animal bodies it is important to learn that spores are not found unless the germs are exposed to the air. In the vegetative (growing) form the anthrax bacteria are easily destroyed by heat and chemicals; but the spores are very resistant. Spores have been known to germinate after being boiled for half an hour or longer. Ordinary disinfectants in the strength usually used will not kill the spores

unless acting for a very long time. The spores withstand drying for years. When pastures are infected it is impossible to disinfect them. Because of the resistance of the spores anthrax is one of the most difficult diseases to eradicate. Pastures once infected retain the germ for years.

Practically all of the domesticated animals and man are subject to this disease. Rats and birds are reported to be immune; but they may carry the germs from one place to another. Cattle, sheep, mice and guinea pigs are most susceptible; horses and pigs are supposed to be not so susceptible. In cattle and sheep and in the great majority of horses, according to McFadyean, the anthrax bacteria are always found in the blood at the time of death. They are generally present in enormous numbers. The writer made an examination in 1904 of the blood of a cow in this same locality two hours before death, in which anthrax bacteria were found in the enormous number of between 300,000 and 400,000 per cubic millimeter, that is, between 1,100,000,000 and 1,480,000,000 per fluid dram. The past year in several cases of animals dead of anthrax the bacteria were found present in the blood in much greater numbers than in the above case. If these germs remain in the carcass of the dead animal and are not exposed to the air they quickly undergo dissolution, spores are not formed. If, however, only a small quantity of blood escapes, as may occur from hemorrhage from the nostrils, anus, vulva, or in the feces, the ground on which this material falls becomes infected it may be by an enormous number of the germs. In these germs exposed to the air, spore formation soon takes place. Hemorrhages into the intestinal tract are common, hence droppings of animals sick of this disease are very liable to contain the germs. Where swellings are present on the body the anthrax bacteria may be present in these in great numbers. The practice of opening these, as has been done in several instances by placing setons or rowels in horses, is a dangerous one, as the discharges from these wounds may contain great numbers of the germs. In a horse examined July 31, 1906, there was a

swelling about two inches in thickness in the subcutaneous tissue of the under side of the thorax. This swelling had been opened and setons (rowels) introduced. Examination of the escaping fluid showed anthrax bacteria present in large numbers; cultures made from the fluid showed the same germ.

The symptoms observed were mainly those seen in cases of any high fever. There was usually a marked diminution in the milk secretion. The animal was separate from the rest of the herd, ears drooped, skin hot. The temperature was high, often 107 to 108° F. In the majority of the cases observed the course of the disease was rapid. A cow commonly appeared well in the morning when turned out; at night she gave little or no milk, skin hot, ears drooping; the next morning she was found dead. Sometimes blood of a dark color, not coagulating, was observed oozing from the nostrils, anus and vulva. In many instances bloody discharges were not found. Often in cattle the left pre-cranial lymph glands have been swollen. Only a few animals have been observed during the death agony. Those observed have died in convulsions. In the horse, the first symptom observed in many cases was one or more hot painful swellings on the lower side of the chest or abdomen. Later the swellings become cold, painless and of a doughy consistency. Generally colic pains were present. In 1904 the writer in studying cases of anthrax found that the temperature raised suddenly and tended to drop gradually after the initial rise, reaching normal in from two to four days. The following is a record of one fatal case and of three that recovered:

Cow.	July 8	9	10	13	14	16	17	18	First Symptom Observed.
S No. 8.....	107.5	106.6	.....	.....	.....	.....	.....	.....	July 8
S No. 4.....	102.1	102	106.2	103	101	101.2	.....	.....	July 10
S No. 6.....	107.4	104	100	101.8	101.2	101	.....	.....	July 7
B No. 1.....	.....	.....	.....	.....	.....	103.8	101	102	July 15

S No. 8 died July 9th three hours after the temperature was taken. It was noticed during 1906 that where an animal lived over two days after the first symptom was observed the chances were good for recovery.

The channels of infection seem to have been (1) by the digestive tract and (2) possibly in some cases by the skin. Nearly all of the cattle, sheep and hogs and some of the horses have had the disease without visible localization. It was a general disease when first observed. The mode of infection in such cases, from researches made by various investigators, seems to be by the food or water. The spores are present in the infected pastures on the grass or surface of the soil where they have been introduced previously by carcasses of animals buried there or by infected material brought by birds, dogs, foxes or other animals. Cases are recorded where fields have been infected by fertilizers. Other cases are on record of infection through infected hay or grain. Many of the pastures in this locality have never been ploughed, so that it does not seem possible that fertilizers could be culpable. Many of the herds are not fed grain, so that seems to be eliminated. So far as I was able to learn the cases have been almost entirely while the animals were at pasture. Only one case was reported of an animal having anthrax while in the stable. One cow died of anthrax in March. It seems probable that in this case the hay contained the spores of anthrax. On one farm where two horses died of anthrax, the refuse from the stables was thrown into the hog yard. Twelve days after the horses died, the hogs were taken sick and died with the symptoms of anthrax. From the distribution of the cases it seemed in 1904 that crows had a good deal to do with the spread of the disease. During 1906 that belief was strengthened. In one locality anthrax appeared for the first time on farms situated along a ridge of land two or three miles from infected places. One of the farmers is said to have poisoned crows by strychnine to protect his newly planted corn. Dead crows were found in abundance in his pastures and in those of his neighbors. Later, about long enough for the crows to decompose, anthrax appeared.

The farmer who used the strychnine lost 5 cows and 2 horses, his neighbors each a smaller number of animals. About 2½ miles in an air line, a farmer early in the same Spring had lost two cows with the symptoms of anthrax. The carcasses were drawn out in a field and left unburied until the neighbors complained of the stench.

In many of the horses the first symptom observed was one or more swellings of the subcutem. Possibly infection occurred in these cases through the bites of flies. Dalrymple has reported infection by means of the horse fly (*Tabanus*). The relatively large number of cases in horses, 14.64% compared with 7.81% in cattle and 3.03% in sheep, is very suggestive.

The method followed in combating anthrax has been in regard to the following points: (1) positive diagnosis, (2) proper disposition of the bodies of dead animals and infective material from sick or dead animals, (3) disinfection of premises and (4) vaccination.

(1) It is of prime importance to know in each instance whether the case is one of anthrax or not. To be sure there may be scarcely any doubt as to cases occurring on farms where there have previously been cases of anthrax having typical symptoms; but even typical symptoms are somewhat vague. Perhaps there is no other disease in which a mistake in diagnosis is so apt to lead to serious results and is so likely to be discovered. A positive diagnosis fortunately may be easily and quickly made. In cattle, sheep and the great majority of horses the anthrax bacteria are present in the blood at the time of or even before death, in sufficient numbers to be easily found. In hogs they may not be found in the blood; but an examination of the edematous fluid from the swellings about the head or neck will show the anthrax bacteria. The germs are present in local swellings in other animals than swine and may be found on examination of the fluid in such swellings. All that is necessary to make a positive diagnosis is to examine the blood or edematous fluid of the dead animal. During life the bacteria may not be found in smears of blood.

The method used for examining the blood or fluid for anthrax bacteria was simple. Smears were made on glass slides and stained by Jenner's, by Wright's, or by McFadyean's method. In cases of anthrax the specific bacteria were readily found and identified if the blood was obtained uncontaminated. Where the blood or fluid is contaminated, as will be the case if it is obtained for example from discharges from the nostrils, anus or vulva, one may be compelled to wait for cultures to grow. The blood should be obtained under aseptic precautions from the blood vessels. If putrefaction is not advanced it is convenient to obtain blood from one of the larger vessels, as the jugular vein. A hypodermic needle may be inserted into the jugular and sufficient blood, one or two drams, drawn and placed in a sterile vial. Both vial and cork should have been boiled for at least a half hour. When putrefaction is advanced it is better to have peripheral blood, as putrefaction is less advanced in the peripheral vessels than in the larger ones. An ear may be cut off and sent for examination. The wound should be thoroughly disinfected. Blood should not be left exposed to the air. When putrefaction had begun, a putrefactive germ having square ends was found. However, the putrefactive organism differs sufficiently in appearance and staining properties from the anthrax germ to be readily recognized. With the stains mentioned the putrefactive organism stains a deeper blue, and does not show the degenerative changes observed in *Bact. anthracis* when putrefaction has begun. The putrefactive germ is also larger.

Jenner's stain. The smear previously unfixed is flooded with the staining solution which is allowed to act 2 to 3 minutes. The preparation is then washed in pure water for about 10 seconds. The excess of water is shaken and blown off quickly and the preparation dried rapidly in the air. The red corpuscles should have a pinkish tint, the anthrax bacteria are blue, the capsules violet.

Wright's stain. The smears previously unfixed are flooded with the staining solution which is allowed to act one minute. Then distilled water is added drop by drop until a metallic film

begins to form on the surface. The diluted staining fluid is allowed to act two minutes longer, when the preparation is washed in pure water from 10 seconds to a minute. The water is then shaken and blown off and the preparation dried rapidly in the air. The red corpuscles in the thinner spread parts of the film should have a pinkish hue, anthrax bacteria are stained blue and their capsules violet.

McFadyean's staining method. The smear should be rather thick and should be dried in the air quickly, or over a small flame. Before staining the smear is incompletely fixed by heating. The slide is lowered smear side up into the flame of a Bunsen burner or alcohol lamp for a second and the process repeated three times. Heating should not be enough to prevent the hemoglobin in the red corpuscles from being dissolved during the subsequent staining and washing. The staining fluid is a 1 per cent. solution of methylene blue. McFadyean found that a freshly prepared solution of the pure dye would not give the desired reaction; but that an old solution or one that had been boiled with one-half per cent. solution of sodium bicarbonate would give the desired color. I have obtained more satisfactory results with Loeffler's alkaline methylene blue than with 1% aqueous solution of methylene blue. The smear is flooded with the stain for a few seconds; then is washed thoroughly in tap water. The slide is dried rapidly by blotting off the excess of moisture and then heating gently over a flame. The nuclei of leucocytes and the anthrax bacteria are stained blue. The characteristic reaction consists in a violet or reddish purple color of amorphous material about or near the anthrax bacteria.*

The reddish purple color is due (McFadyean) to the capsules of the bacteria which being incompletely fixed disintegrate

* This color is seen in the specimen even before it is placed under the microscope, though the violet tint of such a specimen of anthrax blood is not characteristic of anthrax, as McFadyean supposed. Diphtheria grown on Loeffler's blood serum and stained with alkaline methylene blue gives the same tint. Dr. W. J. Taylor tells me that he can make a shrewd guess as to whether a given culture of diphtheria is positive or not by the tint of the stained specimen. Negative ones have a greenish blue tint. The difference in tint in the case of the diphtheria is precisely the difference between the tint of a positive and negative anthrax preparation.

when the aqueous solution of the staining fluid is applied. The reaction has proven to be a good one, though I have found no advantage in this method over Jenner's or Wright's stains except that a thicker film is made when using McFadyean's method. This is of advantage when only a few bacteria are present. With the latter stains if decomposition has not begun the capsules of the anthrax bacteria are well stained, of a violet color. If decomposition is advanced enough so that the anthrax bacteria show marked degeneration, the violet color is obtained not only immediately surrounding the anthrax bacteria but in amorphous material lying between the bacteria. Diagnosis can be made as quickly and as surely with Jenner's or Wright's stains as by using McFadyean's method. With Jenner's or Wright's stains there is an advantage in that no fixation is required for the films before adding the staining fluid. Fixation and staining are accomplished at the same time, as these dyes are dissolved in pure methyl alcohol.

In the cases examined cultures were also made. As a rule the culture merely confirmed the opinion formed from the examination of smear preparations. In some cases blood from a contaminated source, discharge from the nostrils, anus or in one case from the contents of the intestines, was received. It seemed better in these cases, owing to the great variety of bacteria present, to wait for cultures to develop before forming a judgment as to whether anthrax was present. But in the blood obtained without contamination there seemed to be no organism that should be mistaken for *Bact. anthracis*.

Where a personal examination was not made blood was drawn in a sterile hypodermic syringe and placed in a vial which with the cork had been boiled for half an hour. This was brought or sent to me and examined at once in stained preparations and cultures were made. Where the anthrax bacteria were not found in smear preparations in blood properly obtained cultures in all cases showed no growth.

(2) The safest method of disposing of the bodies of animals dead of anthrax together with the discharges and litter about such is to burn them completely. Where burning is impracticable burying deeply, 8 or 10 feet, and covering the bodies with a thick layer of quicklime will suffice. Burying in the ordinary manner is too dangerous. By means of earth worms (Pasteur) or other means the anthrax bacteria may be brought to the surface and later produce the disease in other animals. Cases are on record where this has happened eight years after carcasses were buried. A carcass is easily burned. It should be about a foot above the ground to give a draught of air beneath. A very satisfactory way is to dig a shallow grave, 2 or 3 feet deep, place pieces of green wood across, and lay the body on this. With about a gallon of petroleum poured over the body and wood piled on, the carcass burns readily, the shallow grave seeming to keep the heat concentrated. Comparatively little wood is necessary. The bodies of dead animals were not opened. A post-mortem examination should not be performed in cases of anthrax unless it can be done in a place that can be thoroughly disinfected, as on a concrete floor. Where carcasses had been buried these were disinfected. Holes were made in the graves by means of a long iron bar and the disinfecting fluid poured directly on the body in several places. Crude sulphuric acid diluted with an equal volume of water was used, as this was thought to be the most efficient as well as the cheapest disinfectant for this purpose. A gallon or two of the acid was found to be sufficient for each carcass.

(3) Where animals died in stables or buildings these were disinfected. A five per cent. solution of phenol was applied thoroughly by a pump throwing a fine spray; all of the surface and crevices, so far as possible, were thoroughly saturated. Disinfection was repeated later. Stables with wooden floors probably can not be thoroughly disinfected. The owner was advised to tear out and burn the floorings; but this was done in only one instance.

(4) Methods of treatment of animals suffering with anthrax have had the same lack of success in this region as seems to have been the case elsewhere. This renders every means of prevention all the more important. Where possible the well animals were changed to pastures that were not infected. Unfortunately this could not be done in many cases. Herds affected and those in close proximity to infected ones were vaccinated. 314 horses, 2,012 cattle, 369 sheep, 17 hogs and 2 dogs have been vaccinated by the Department of Agriculture in the anthrax district. Besides these many more were vaccinated privately. The vaccine used was obtained from the New York State Veterinary College, except a small amount which came from H. K. Mulford Co. There were 17 cases, 13 in cattle and 4 in sheep, occurring ten or more days after the second vaccination; but the small number of cases may have been due to other causes. The majority of cases each year has occurred during June and July.

To give the animals on infected farms the full benefit to be derived from vaccination, animals should be vaccinated each spring for some years before being turned out to pasture.

Conclusions.

1. Anthrax has been present in a portion of St. Lawrence County for several years.

2. It has increased greatly during the years 1905 and 1906. During the latter year there were 192 cases of anthrax in the townships of Waddington, Madrid, Norfolk, Potsdam, Stockholm, Louisville and Brasher.

3. The spread of the disease has been due largely to improper disposition of the bodies of dead animals. Carcasses have been left exposed and have been improperly buried. Infective material has been carried from carcasses by crows or other animals, or possibly by flies, and other animals have been infected directly or indirectly. Local swellings have been cut open. The anthrax bacteria have been found in the discharges from such wounds. Flies might easily carry the germs of the disease from such discharges and infect other animals.

4. Vigorous measures are needed to combat the disease.

(a) A positive diagnosis should be made of each suspected case. As anthrax is one of the most difficult diseases to eradicate much greater care should be taken to prevent pastures becoming infected. A mistake in diagnosis would cause unnecessary trouble and expense, or, on the other hand, might lead to the infection of new places.

(b) Bodies of animals dead of anthrax together with the discharges and the litter about the bodies should be completely burned or buried deeply and covered with a thick layer of quicklime. Post-mortem examinations should not be made unless in a place that can be thoroughly disinfected.

(c) Stables and yards where animals have died or been sick should be thoroughly disinfected. Where practicable the surfaces of yards or paddocks should be covered with a layer of straw or litter and then burned. Wooden floors should be torn out and burned. Where disinfection is attempted the disinfectant used should be strong enough to kill anthrax spores, which are very resistant to ordinary disinfectants.* The disinfectant should be thoroughly applied.

5. When a case of anthrax occurs the well animals should be changed to a non-infected pasture. The temperatures of the animals should be taken twice a day and if any animal shows a marked rise of temperature it should be removed promptly from the well ones.

6. Animals on infected farms should be vaccinated in the spring before being turned out to pasture.

Table I. gives in tabular form the number of horses, cattle, sheep and hogs as nearly as could be ascertained, the number of cases of anthrax and the number of farms affected, together with the total numbers of each and the percentages of the cases of anthrax in horses, cattle and sheep on the affected farms. The

* The following disinfectants have been found to be able to kill anthrax spores: (a) a 1:3 solution in water of chlorinated lime; (b) a solution of 4 per cent. crude carbolic acid with the addition of 2 per cent. hydrochloric acid; (c) a mixture of equal parts of crude carbolic and sulphuric acids diluted with 20 parts of water to one part of the mixture.

percentage of hogs affected is not given as the number on the affected farms was not definitely known:

TABLE I.

Township.	Number of Animals on Affected Farms.				Number of Cases of Anthrax.				Total Number Cases of Anthrax.	Number of Farms Affected.
	Horses.	Cattle.	Sheep.	Hogs.	Horses.	Cattle.	Sheep.	Hogs.		
Waddington.	19	146	29	..	..	12	1	..	13	7
Madrid	32	164	26	..	2	15	1	..	18	9
Norfolk.....	139	858	232	8	26	57	9	2	94	40
Potsdam.....	6	19	..	..	..	1	..	..	1	1
Stockholm...	42	277	16	..	8	24	..	1	33	14
Louisville....	38	286	60	..	4	28	..	..	32	12
Brasher.....	4	15	..	..	1	..	..	..	1	1
Total.....	280	1,765	363	8	41	137	11	3	192	84
Percentage of cases to number of animals on affected farms.....					14.64	7.81	3.03			

Table II. presents for the respective townships the number of fatal cases of anthrax in horses, cattle, sheep and hogs the number of animals (horses and cattle) that had anthrax and recovered and the totals of each:

TABLE II.

Township.	Number of Fatal Cases of Anthrax.				Total Number of Fatal Cases.	Sick of Anthrax Recovered.	
	Horses.	Cattle.	Sheep.	Hogs.		Horses.	Cattle.
Waddington.....	..	12	1	..	13	..	..
Madrid.....	1	14	1	..	16	1	1
Norfolk.....	19	51	9	2	81	7	6
Potsdam.....	..	1	..	..	1	..	..
Stockholm.....	8	21	..	1	30	..	3
Louisville.....	4	24	..	..	28	..	4
Brasher.....	1	..	..	..	1	..	..
Total.....	33	123	11	3	170	8	14

SALTPETRE POISONING IN SHEEP.

By A. W. WHITEHOUSE, V. S., Laramie, Wyo.

The policy of the Federal Government, whereby it sits on the vast grazing lands of the Western States, lands which ought to have been sold and in private hands many years ago, results in a constant struggle for grazing between the owners of sheep and cattle. The sheepmen peacefully and legally absorb the grass in a manner ruinous to the owners of cattle; the cattlemen resist in a manner spectacular and criminal. For the past fifteen or twenty years I have heard talk among stockmen of saltpetrering a range, and of its deadly results, but have been inclined to scout the idea as a popular fallacy. However, as will be shown later, this is one of the many popular notions that prove to be correct.

In August, 1907, as an incident in one of the grazing disputes outlined above, a herder, quite near to Laramie, in moving his bunch out to graze, happened to be at one side of the band and noticed a series of heaps of a white powder following the trail of wagon wheels, from which it had evidently been distributed. He at once moved his sheep before they had had access to the powder, and reported the case to the authorities. About 100 lbs. had been distributed in heaps of about 1 lb; analysis and examination showed the substance to be commercial powdered saltpetre, mostly compacted into lumps, as it usually comes.

Upon County Prosecuting Attorney putting to me the following question: "Will powdered saltpetre scattered on a range kill sheep?" I looked up the authorities with the following result:

Finlay Dun, Veterinary Medicines, Edinburgh, 189, pp. 542 and 543: "Dose for the sheep 5i to 5ii. An ounce has proved fatal in human patients. Morton, in 1837, gave a healthy horse 2 lbs. dissolved in 6 lbs. water, and found that it acted both on

kidneys and bowels, but that its effects ceased in 24 hours. Moiroud reports that $\frac{1}{2}$ lb. given to horses and 2 or 3 drachms to dogs inflame the alimentary canal and urinary organs, causing depression and death, usually within 24 hours."

Kenelm Winslow, Vet., Mat., Med. and Therapeutics, N. Y., 1905, pp. 127 and 128: "Dose for the sheep, 5ss to 5i. Nitre causes, in lethal doses, violent gastro-enteritis, collapse and depression of the circulation. . . . Potassium nitrate is one of the most irritating salts of this group, but its toxic effect depends upon its state of concentration, and horses are not so susceptible to the local irritating action as man. The salt is rendered harmless by dilution."

J. H. Steel, Diseases of the Sheep, London, 1890, pp. 344 to 349: "Dose for the sheep, 5i. Lambs are recorded to have died from licking walls covered with nitre, but why the walls were thus covered is not very evident, and the practical value of the observation simply lies in the fact that it shows nitre cannot be abused by too free use in sheep practice, especially in administration to young animals."

W. A. Rushworth, "Sheep and Their Diseases," Chicago, 1903, B. A. I. Inspector in Colorado, has nothing to say about poisoning, animal, vegetable or mineral. On p. 365, in a table of medicinal agents, appears "Nitre, see Saltpetre." Saltpetre, however, is not listed.

J. A. Nunn, Veterinary Toxicology, N. Y., 1907, recapitulates most of the information given above and adds: "The poisonous effects of nitrate of potash take place both from the metal and acid base, and when taken in a very concentrated form, from the resulting gastro-enteritis. . . . Accidents are usually caused by its being given for medicinal purposes. Kaufmann gives the toxic dose as

Ox 200 gm.=about 6 oz. $3\frac{1}{2}$ drm.

Sheep 25 gm.=about $6\frac{1}{2}$ drm.

Dog 5 gm.=about $1\frac{1}{4}$ drm.

or about 0.02 gm. per kg. (I suppose this latter should be 0.2

gm., as dogs of 250 kg. are rare.) Huzard states that 3 doses of 16 oz. each at intervals of 8 days killed a horse, and 5 to 6 oz. cattle."

Nunn believes that under certain conditions K aufmann's doses are too high. He treats at more length and with more definite knowledge of accidental poisoning by Chili Saltpetre (sodium nitrate) both from grazing on top-dressed land and from chewing sacks.

James Law, Veterinary Medicine, Ithaca, 1905, Vol. II., pp. 272 and 273, adds little to the extracts given above except to recommend large quantities of water as an antidote.

Post-mortem, all authorities agree on kidney lesions, gastro-enteritis and poor coagulation of blood, observations borne out by my experiments; but they also agree that the blood is of a light or cherry red, whereas, in all my cases it was very dark indeed.

So much for my study of the authorities. I reported to the county attorney that I was very little wiser than before, and he instructed me to settle the questions by experiment.

Laramie is a great point for feeding Western sheep in transit, and the management of the stockyards very kindly placed some left-over sheep at my disposal.

EXPERIMENT NO. I.

Object—To ascertain the toxic dose, and incidentally to make all observations possible.

Subject—Sheep No. 1, a six months' western range wether lamb; condition and general health good; lame in right foreleg.

Dose—4 oz. av. commercial powdered saltpetre dissolved in 20 fl. oz. water and administered as a drench, $\frac{1}{8}$ oz. possibly lost in administration.

1907. A. M.

Sept. 2, 10.00—Administered the dose.

10.10—Sick and dizzy; lies down; R. about 60.

10.15—Soft f eces; R. 94 and irregular; head quivers; ears droop; discharge from nose.

- 10.20—Copious urine.
10.35—Copious pale urine; scouring.
10.45—Passing liquid fæces; slight abdominal pain.
10.50—Foul-smelling liquid fæces with mucus; strains; grits teeth.
10.55—Inco-ordination of gait when made to walk; had a convulsion when knocked over by a goat.
11.00—More urine.
11.10—Moves stronger.
11.15—Urine; has not once got up of his own accord; scours again but more solid, with no blood.
11.30—Moves much better when scared of a dog; a goat upset him without a convulsion following.

P. M.

- 1.15—Urine; has not scoured since last report.
1.25—Drinks a few swallows of water aimlessly; semi-conscious.
1.37—Has been drinking in sips since last report; lies down; quivers in flank, breathing with a spasmodic jerk.
2.25—Spasms; bleats as if in pain; staggers and falls; muscles of neck draw head to side.
2.30—Breathes very hard with occasional groans; R. 90.
2.40—Eyes show only the white; body rigid; unconscious.
2.45—Conscious; bleats; tries to stand; strains hard.
2.47—3 convulsions; fluid pours from nose; bleats; dies.

Post-mortem at 4 P. M. Right kidney somewhat, left kidney highly inflamed, not enlarged; bladder empty, inflamed on peritoneal coat; first, second and third stomachs somewhat inflamed; abomasum most acutely inflamed; the mucous coat in shreds. This

is the cause of death. Intestines empty, slightly inflamed, the cæcum being the worst; other organs apparently normal; blood dark, coagulation poor. Death occurred 4 hours and 47 minutes after administration of the poison.

EXPERIMENT NO. 2.

Object—To ascertain the toxic dose and incidentally to make all observations possible.

Subject—Sheep No. 2, a western range ewe lamb, 4 months old, in good health and fair condition.

Dose— $1\frac{1}{2}$ oz. av. commercial powdered saltpetre in 12 fl. oz. of water; administered as a drench, all being swallowed.

1907. A. M.

Sept. 2, 10.15—Dose administered.

P. M.

1.30—Up to this time normal; no urine or fæces observed.

2.20—Violent convulsions lasting 3 minutes, running head against fence; lies down in pain; urinates copiously.

4.00—Dull since last report.

4.40—Mucous membranes dusky; dull; has not scoured.

5.00—T. 105.5; R. spasmodic; has scoured a little.

6.15—Very sick and depressed.

8.00—Seen by an attendant; lying down but alive.

A. M.

Sept. 3, 7.00—Dead and cold, probably before midnight; has not apparently scoured.

9.00—Post-mortem: When carried away green fluid pours from nostrils; right kidney 3 times normal size; capsule free; cortex blotchy; shows intense inflammation; left kidney 3 or 4 times enlarged, soft; acute extensive inflammation; bladder empty; general en-

teritis; whole intestinal tract congested; stomachs all show slight patchy inflammation; first part of small intestine intensely inflamed and broken down; this is the cause of death; blood coagulation slow and poor; color darker than normal; lung showed small patches of acute red hepatization; other organs apparently normal; death occurred between 11 and 21 hours after administration of the poison.

EXPERIMENT No. 3.

Object—To ascertain if a sheep will voluntarily eat a fatal dose of saltpetre.

Subject—Sheep No. 3, a 4-year-old western range ewe, small, in fair condition; good general health, but lame on right side from rheumatism or accident.

History—This sheep has been kept for from 10 to 14 days in a pen with some goats and has had constant access to rock salt; she is consequently not in the least salt hungry.

Dose—1 lb. av. powdered commercial saltpetre offered for voluntary consumption.

1907. A. M.

Sept. 10, 10.00—Turned alone into pen, N. Laramie stockyards; this pen contains enough grass to feed her for a day or two.

10.20—A pail of water and 1 lb. saltpetre in a pie pan put in the pen; sheep rather nervous being alone.

10.45—Put 2 lumps of the original saltpetre on a board near her water, and the pan containing the rest at the gate in the opposite corner; she had then licked a little.

11.45—No symptoms; left her.

P. M.

- 1.45—Lying down; has been at the saltpetre, licking some off the dish; there is also dirt on the lumps; very dull and droopy; urinates twice.
- 2.00—Tail wags; slack gait apart from the lameness; passes mucous-coated fæces, soft, fairly formed.
- 2.15—Drinks in sips; picks at grass; respiration slow.
- 2.30—Caught and examined; stood as if under a shock; P. 132, T. 103.5°; conjunctiva gray and injected.
- 2.35—Brighter and better; eats grass.
- 2.40—Chews; licks lips; throws up nose.
- 3.05—Hiccoughs and sneezes; scared of a stranger; lively; canters.
- 3.25—Head up; active; believe she is recovering.
- 3.30—Drinks; has not lain down since 1.45 P. M.
- 3.35—Hind legs shaky; turns round like a dog wanting to lie down, while picking grass; seems to have some effort to keep her balance.
- 3.40—Drowsing off on her feet.
- 3.50—Drinks freely; hindquarters quiver.
- 4.15—Uneasy; roams aimlessly; picks grass.
- 4.20—Lies down; kicks with left hind leg continuously and looks at flank.
- 4.30—After twitching gets up.
- 4.40 to 5 P. M.—Seems easier all the time; remarkable absence so far of urine or fæces.

A. M.

- Sept. 11, 8.00—Weak; has nosed some saltpetre; kicks at flanks; froths at mouth; semiconscious; has not scoured, but has passed fair-looking fæces during the night; has drunk about 2 gallons of water since yesterday morning; offered her new water and alfalfa hay.

- 8.45—Caught her; has dried saltpetre on mouth; gray color of tongue; saliva frothy; conjunctiva gray and injected.
- 9.00—Has not been seen to ruminate at all, nor to urinate since 1.45 P. M. yesterday.
- 9.30 and 9.45—No change.
- 10.00—Drinks about one quart of water; then has convulsions for 17 minutes, bleating constantly; dies; pain preceding death very severe; death occurred 24 hours after first exposure.
- 11.15—Post-mortem: In skinning, the blood is dark with poor coagulation; peritoneum normal; external aspect of intestines shows general enteritis. Left kidney, the fat very adherent, constricted in the middle (old) size normal; intense dark nephritis; tough. Right kidney very large, indurated, redder intense nephritis, capsule normal. Liver pale with gall bladder enormous, full of dark bile, inflamed and soft. Lungs show small congested patches. Pericardial sac enormous, containing fluid slightly bloodstained. Both auricular appendages very thin, containing firm, black clots. Rumen contains yesterday's grass unchanged; walls normal. Reticulum shows slight irritation. Omasum has normal coats, but almost empty. Abomasum shows very considerable inflammation. Duodenum and ileum broken down; inflammation most intense. Here is the cause of death: Pharynx and œsophagus normal; bladder empty, normal. The weighed residue of saltpetre was 14 $\frac{1}{16}$ oz. av., leav-

ing to be accounted for 1 15/16 oz. av. The day was windy and some was spilt. She probably got about 1 1/2 oz. av.

EXPERIMENT No. 4.

Object—To ascertain whether, in a poisoned sheep, the kidney or other small convenient organ will contain enough saltpetre for analysis, thus avoiding the necessity of shipping suspected stomachs, etc., to a chemist. Incidentally, to ascertain the minimum dose. The object was not attained, but some rather valuable observations were made.

Subject—A yearling scrub Wyoming buck, in fair condition and very vigorous.

History—Has been grazed out in a band, and has had no salt for 3 weeks.

1907. P. M.

Dec. 23, 2.45—Placed in a small room at the Wyoming Agricultural Experiment Station; given an armful of hay and a bucket of water; offered for voluntary consumption 1 oz. av. powdered commercial saltpetre in a little trough.

A. M.

Dec. 24, 9.00—Has taken no saltpetre and no hay; drenched with 1 oz. av. saltpetre in 8 oz. warm water.

Dec. 25, 10.00—Has apparently eaten no saltpetre; urine has been very copious; fæces copious and soft, but not scouring; has thrown out about a handful of stomach contents; seems bright and active.

Dec. 26, 9.30—Bright and lively; gave 1 oz. powdered saltpetre in 8 oz. warm water; has nosed the offered saltpetre, but taken little if any; fæces are firmer; urinated immediately after the dose.

9.45—Has a coughing fit; licks lips.

- Dec. 28, Seems perfectly well; faeces normal to hard; appetite good; thirst considerable; urination free.
- 10.15—Gave $1\frac{1}{2}$ oz. av. saltpetre in 8 oz. warm water.
- Dec. 29, Yesterday's dose does not seem to have had any effect whatever.
- Dec. 30, It was clear that so resistant a sheep would need an unusual dose to kill him, and that conclusions drawn from analysis of his organs might therefore be unreliable; so he was turned back to his owner and is well to-day.

These data are too few for certainty, but point to the following conclusions:

1. The toxic dose of saltpetre for sheep is somewhere not far from $1\frac{1}{2}$ oz. avoirdupois.

2. Some sheep will readily poison themselves with saltpetre, even when the conditions incline to fear and nervousness.

3. Some sheep will not touch saltpetre.

4. Previous access to salt is not a preventive: indeed, from the limited number of experiments, it would appear to be the reverse.

5. Resistance to the poison is variable.

6. Doses nearly toxic have apparently no cumulative effect where elimination is free.

7. A poisoned animal shows marked dullness and depression for hours, and dies in convulsions. Discharges are not constant. No probable voluntary dose will result in sudden death.

8. Kidneys are always inflamed, and in 50% of cases enlarged.

9. Death is from inflammation of the abomasum or small intestine.

WORK STILL TO BE DONE.

The experiments should be repeated; the toxic dose ascertained more closely; the saltpetre must be traced by analysis to

its resting places in the body, and practicable antidotes must be looked for. In this last connection I have hopes that water in large quantities will be efficient.

It is very possible that more of this nefarious work has been done on the western ranges than has been suspected; trail sheep especially might travel several miles from a saltpetred area before the herder would notice symptoms, and many deaths may have been ascribed to alkali, poisonous weeds and the like that were really due to potassium nitrate. The work is quite important, and I hope to do some further investigation this coming autumn when material will again be plentiful and inexpensive.

“I HAVE derived great benefit and pleasure from the REVIEW and am convinced that if a practitioner wishes to keep in touch with up-to-date methods and discoveries, he *must* take this periodical.”—(C. G. Saunders, *Veterinarian*, Toronto, Canada.)

THE NEW YORK LAW TO BE ENFORCED.—In a bill now pending before the New York Legislature, additional provisions are made for the enforcement of the law governing the practice of veterinary medicine and for the punishment of persons practicing in the Empire State without being duly licensed in conformity thereto.

HUNGARY'S ANIMAL FOOD SUPPLY.—For many years Hungarian farmers have demonstrated peculiar care and enterprise in the breeding and raising of animals intended for human consumption and the result of attaining a very high degree of merit. It is estimated that over 100,000 bulls are used in Hungary for breeding purposes, and that as a result about 4,000,000 animals are available for the food of man. Furthermore, dairy companies have largely increased in Hungary, there being over 50,000 farmers engaged in this profitable source of revenue. Every encouragement is given by the Hungarian National Agricultural Association who carefully watch an outbreak of disease, and it is worthy of mention that Hungarian cattle, as a consequence of eternal vigilance, enjoy a reputation second to none. Throughout Europe, Hungarian beef is highly thought of and eagerly purchased.—(Emil Zerkowits, *American Correspondent of the Royal Hungarian Museum of Commerce*.)

DISEASED TESTICLES IN CRYPTORCHID HORSES.

BY WM. DRINKWATER, V. S., MONTICELLO, IOWA.

Presented to the Iowa State Veterinary Association, at Cedar Rapids, Iowa, Jan. 28-29, 1908.

During the past year the writer had some experience in cryptorchid castration which he thought might be of interest to the members of this association.

I castrated two two-years-old and one yearling cryptorchid colt unassisted, which prospered well enough to please any man. In the cases of some older and more valuable horses, I called in the assistance of a friend who has had considerable experience in this line of surgery.

In the month of June we went to a farm to operate on a horse that would always show his amorous qualities in the warm weather of spring and early summer and was then six years old.

When we got there the owner was just commencing corn plowing and he said he was glad to see us as the horse was as he thought too much of a stud horse to plow corn for the first time.

We had the horse taken out on a pasture and we cast and secured him and my friend proceeded to operate. He soon found the cord and traced it to the testicle but it could not be drawn out and the operator tried till his hand got tired. Then I prepared my hand and tried it without success. Then the operator went at it again and said he worked his finger all around the testicle and broke the adhesions and drew it outside.

It was a large mass and round with the cord enlarged and flabby for some distance toward its origin and atrophied epididymus. It was removed with the emasculator and the wound dressed and the horse allowed to rise. He was stiff and sore for a few days and then was put to plowing corn again, which

he did to the owner's satisfaction, and at last accounts was doing well.

In October a farmer called on me and said he had a colt two and a half years old that had a testicle left in him and wanted him castrated as soon as possible in fear that he might cause damage to some other horses.

We cast him and my friend opened into the usual place and soon found the cord and found the testicle to be a large round mass that could not be drawn out, and he worked at it until his hand got tired and had no grip left in it.

I prepared my hand and examined, and found as he said, a large round mass, and I asked the doctor if there could be any mistake about that being the testicle. He examined it again and said there was no doubt about it and said he had not grip enough in his hand to remove it.

I prepared my hand again and found the tumor and commenced a rolling motion on it and brought it out of its location and down to the opening and outside. It was large and like a man's fist, and the cord was congested and filled with amber-colored fluid, and part of the contents were albuminous, and the testicle had some pus in its interior.

The mass was removed as high up as possible with the emasculator and the opening packed with a piece of clean muslin soaked in an antiseptic solution, and the horse allowed to rise.

He showed symptoms of colic for a few minutes, which subsided without treatment, and then went to eating some oats. We left him for an hour and when we returned he was lying down and quiet. We had him get up and we removed the packing, and he was turned out with the other horses.

We left the farm and I heard no more of the horse for almost a month, when I was in that section of the country. I called the owner to the telephone and asked about the horse. The reply was that he was doing real well and getting along all right. I was in that section again the next week and the owner called me up and said to come over as that horse was sick. He had a diarrhœa about a day and would not eat.

I gave him a pint and a half of Ol. Lini and left some aromatic sulphuric acid to be given in half-ounce doses in water every four hours if the diarrhœa did not subside.

The wound in the scrotum was doing well and no symptom of anything going wrong in that part. I was called there again in a week, and the owner said he was bound up and he had not used the medicine I left. The horse was in pain and we got a bucket of warm water and some soap and gave him an injection. It brought away a lot of fæces and I cleared the rectum thoroughly and found a large abcess about ready to burst. I broke it through and a lot of fluid came into the rectum. I let it escape outside, but it was not ordinary pus, but the amber-colored and albuminous fluid we found in the cord when we castrated him.

The owner said he used the antiseptics I left to be used in injections and the horse seemed to do better for a few days, then he got very sick and died in a short time. He said he opened the carcass and found abscesses all through that part of the abdominal cavity.

My opinion is that the diseased condition of the testicle and cord followed the artery into the iliac region and if the horse had been operated on at two years old the results would have been better.

What seems to the writer to be peculiar is that both of these cases were as aggressive as could be expected of sound stallions.

The third case is that of an old horse that was brought to me to have his teeth attended to. I informed the owner that owing to his age that the teeth were worn out and that he could not live much longer, and noticed that he had a large tumor in the usual location of the testicle. The owner said he knew no reason for it and that it did not interfere with his usefulness as a reliable buggy horse.

Some time afterwards I learned that this horse was known in his younger days to be a Ridgling. The man who owned him gave him to a renter on one of his farms, who disposed

of him to a neighbor, and I made an arrangement with this last party that when the horse died that I could make an examination and learn what that tumor amounted to.

In the month of December last this party called me up and informed me that the old horse had died and if I wanted to make an examination to come right over.

I went out and opened the abdominal cavity and found the cord and opened down to the tumor, and it was the crytorchid testicle and partly in the abdominal cavity and partly through to the scrotum, and it was as large as a three-quart pail and slipped out of its vaginal tunic easily.

The horse was about twenty-six years old when it died and for the last half of his life had not shown any tendency to be aggressive.

CATTLE TICK APPROPRIATION.—The agricultural appropriation bill passed by Congress places \$250,000 at the disposal of the Secretary of Agriculture for the extermination of the cattle tick.

COMPARATIVE SURGERY.—Now that surgery has advanced to a point where diseased or defective parts of the human body may be removed and replaced with those from an animal, it is presumed that the following will no longer be regarded as mere nature fakes: The man with the eagle eye, the man with the lion heart, the man with the chicken liver, the man with the bull neck, the man with the pig head and the man with the dog face.

EXHIBITION OF SPECIMENS OF TUBERCULOSIS IN ANIMALS.—Among the many attractions for veterinarians to the great International Congress on Tuberculosis at Washington, D. C., September 21-Oct. 12, may be mentioned an exhibition of specimens of tuberculous tissues, growing cultures of tubercle bacilli, diagrams and maps of infection, now being collected from the meat inspection service of the United States by the Bureau of Animal Industry, U. S. Department of Agriculture, and prepared by said Bureau for exhibition on that occasion.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

PARTURITION CASE IN A MARE WITH UNUSUAL COMPLICATIONS.

By E. A. WESTON, G.M.V.C., Launceston, Tasmania.

The subject was an aged draft mare, which previously had trouble during parturition. Her owner had been watching her, but on the night in question overslept himself, and on getting up found a dead foal and the mare showing signs of having had rather a bad time. An hour or two after, she grew restless, laid on her side, groaned, and appeared to be suffering from colicky pains. I was immediately sent for, and on arrival found the mare stretched out and very uneasy. To quiet her, I gave morphinæ sulph. gr. iv. hypodermically, and then proceeded to examine the womb. This organ appeared normal, but there had evidently been some bruising of an hemorrhage from the vaginal mucosa, just at the constriction marking the termination of the vulva. I syringed these organs out with wram lysol solution and awaited results. The morphinæ sulph. appeared quite powerless to restrain the pain, which increased in intensity; the mare being up and down like an animal with a bad attack of colic. This annoyed me the more, as I could see nothing to account for it, but I explained to the owner that it might arise from peritonitis, or internal hemorrhage. It seemed rather early in the case for the appearance of the former, while the paleness of the visible mucosa made me rather suspect the latter. As the pains grew worse I drove home and sent over chloral hydrate and Tr. Chlor. et morph., ʒi of each to be given every three hours till the pain was relieved. This occurred after the second dose, and on the following day I again saw the mare. She was very dozey, with soft, rapid heart and normal temperature, but otherwise appeared well, considering the doing she had had the previous day.

I was away after this for several days on Government work, and on my return heard that the mare was getting on well. How-

ever, a fortnight after my first visit the owner came to see me and said the mare was bad again, passing bloody urine and showing dull pain. I prescribed Ext. belladonna, glycerine and linseed tea, which seemed to relieve her. The following week I was out to see the mare and found her looking well, but examination showed the same soft, rapid heart, with paleness of the visible mucosa. Strange to say, the temperature and respirations were normal. The owner reported that the mare had had one or two bad turns during the week. On examining the vagina, I found a tense swelling outside the right wall and extending forward as far as I could reach. It rendered passage of the arm difficult, and in order to determine its extent I passed the other arm into the rectum. By this means, I could feel the swelling going downwards and forwards, increasing in size as it went; but I could not reach to the end of it. I informed the owner of its extent, stating that it probably contained clotted blood from the internal hemorrhage previously suspected, and that renewed bleeding would probably lead to the death of the mare, though considering the length of time since foaling (three weeks) a continuance of the hemorrhage was not probable. This was on Sunday, and on Monday night I received a wire saying mare was dead. The following morning I journeyed close on 30 miles by rail and coach to hold a post-mortem.

On opening the abdomen gallons of bloody fluid escaped, revealing to view a well marked peritonitis with fibrous deposits and staining of the abdominal lining. Apart from this the internal organs were healthy. In order to study the swelling felt in vitro, I carefully split the pelvis and removed the left half, exposing to view the generative organs. On section the vagina and womb proved perfectly healthy, but on cutting through the right wall of the vagina the hand could be passed into a sac containing clotted blood. As it passed downwards and forwards it followed the uterus to the wall of which it was attached, and, gradually enlarging, ended in a cul de sac large enough to contain a man's head. The blood in this sac, together with its walls, had become infected, and this infected blood escaping through the perforated wall had set up septic peritonitis of a chronic nature. This case presents several interesting features. In the first place the mare drank very little, whereas, according to theory, the hemorrhage should have caused great thirst and much water should have been drunk to assist in making fresh blood. In the second place, while affected with chronic peritonitis, she showed

no symptoms (with the exception of intermittent pain) by which its presence could be detected. There was no rise in temperature, no marked disturbance of respiration, and no rapid, bounding, metallic heart such as is found in acute traumatic peritonitis. I am also at a loss to know why the mare should have suffered such acute pain at the first. Hemorrhage, internal or otherwise, is not usually a painful process, so far as my observations go. Unfortunately, I was unable to ascertain the particular vessel from which the bleeding originated. The observations in regard to the paucity of symptoms in chronic peritonitis in this case serve to confirm those recorded in several cases of punctured bowel recently reported by me, and prove conclusively that subacute peritonitis may exist for some days prior to death without the animal manifesting any marked symptoms by which its presence can be detected. This is the more astonishing when one considers the amount of toxic material which must be absorbed into the general circulation from so large and vascular a cavity as the abdominal.

PHLEBITIS OF THE ANTERIOR VENA CAVA, BRACHIAL AND JUGULAR VEINS.

By A. T. KINSLEY, M. SC., D.V.S., Pathologist, Kansas City Veterinary College.

A Kentucky thoroughbred mare, eight years of age, was treated for about ten days in April, 1907, for metritis induced by difficult parturition. She apparently made a good recovery and was turned to pasture to recuperate.

On September 20, 1907, the farm foreman noticed a swelling in the submaxillary region. The swelling was soft and doughy and the foreman, thinking it was an abscess forming, applied a blistering agent to hasten the process. The swelling extended rapidly and within a week had involved the pectoral region and the fore legs. Because of the swelling the animal moved about with difficulty and was unable to graze. She was placed in a lot and fed timothy, hay and chop.

November 3, 1907, the following symptoms were observed: She stood with her head down constantly. It was almost impossible to make her move about. Appetite medium. There was an extensive œdematous swelling extending from the symphysis of the inferior maxilla to the ensiform cartilage. The forelegs were extremely tense and swollen. The veins of the forelegs, spur

and jugular veins were gorged and "stood out" as though they were cords on the outside of the skin. The engorgement was more noticeable on the left side. There was an increased area of dullness over the anterior inferior surface of the right lung.



From a photograph of the left jugular vein showing :

1. A complete obstructive thrombus.
2. The vessel wall very much increased in thickness.

The precordial area was increased on the left side. Temperature 102° F., respiration 30, pulse 56, and of a fairly good character. A blood count was made with the following results: 5,080,000 red blood cells and 5,200 white blood cells per c.mm. Small lymphocytes predominated. Haemaglobin 75%.

An unfavorable prognosis was given. The mare rapidly emaciated and became weaker. The circulatory disturbance became more aggravated and the mare died November 30, 1907.

Autopsy—Edematous condition was not as marked as it was 11-3-07. The jugular veins were swollen, firm and resistant. A massive dense growth of fibrous tissue was found surrounding the anterior vena cava and its principal radicles. The mass of tissue was about six inches in diameter and about eight inches in length. Continuous with the principal fibrous growths were secondary growths that extended outward encircling the principal afferent veins of the anterior vena cava. In dissecting these fibrous growths veins were found, usually centrally located, the fibrous tissue having apparently formed around the vessels. A dense partial parietal thrombus occupied almost the entire lumen of the anterior vena cava and the branchial veins, and continued through the jugular confluent into the jugular veins where it was found to be complete in the left and almost complete in the right. The accompanying cut is from a photograph of the left jugular vein and its contained thrombus. The vessel wall was three-fourths of an inch in thickness and was found on microscopic examination to be almost entirely fibrous in structure. The new formed tissue is confined to the tunica adventitia. The thrombus was quite dense, containing many fibroblastic cells that were beginning to form fibrous connective tissue. The humeral veins contained partial parietal thrombi, both spur veins complete thrombi. The spleen had been recently ruptured. There was a slight catarrhal metritis.

This was clinically a perplexing case and the exact pathology of it is still a query. The length of time from the parturition to the first symptoms of the phlebitic condition practically excludes any connection between the two. By inquiry it was found that the mare had fallen in a single stall, and had struggled considerable, about the 20th of November, and this probably explains the rupture of the spleen.

INFECTION IN FOALS.*

By Dr. R. R. HAMMOND, Cherokee, Iowa.

I will report a few cases I have had in 1907 in foals, probably from infection through the umbilical opening, but in very different forms from anything that has ever come to my notice, that

*Report presented to the Iowa State Veterinary Association, Cedar Rapids, Ia., Jan. 28-29, 1908.

is, the pyæmic arthritis, which we have all been familiar with for a number of years:

Case No. 1.—May 10th I was called twelve miles, owner stating by 'phone that he had a sick colt and to come quick. When I arrived I found a colt about five weeks old, in fine condition up to the time of his sickness. Left hip, gluteal muscles swollen hard with a bulging up of probably four inches, swelling continuing more or less to the hock joint; temperature 104, respirations about 20, and pulse 100, and in excessive pain from peritonitis. I gave an anodyne to stop the pain with morphine injection, and it eased up in about thirty or forty minutes, and then gave 10 c.c. of antistreptococcic serum, used an iodine liniment on hip, left 10 c.c. more with a syringe, but he died before night. No opportunity for post-mortem. Perhaps he had been ailing for twenty to thirty hours before I was called.

Case No. 2.—May 15th I was called after colt had been sick for twenty-four hours or longer. Right hip swollen just about same as Case No. 1. Swelling extending to hock. No particular swelling in the joint. Pulse about 70, temperature 103; colt unable to stand alone without assistance; had been up to suck the day before with assistance; quite a little abdominal pain. Gave a little cannabis indica, bathing the hip with warm water; used the liniment and also the antistreptococcic serum of 10 c.c. Left some to be given next morning. Owner reported next morning that colt seemed a little better, but died before night.

Case No. 3.—May 25th, colt in fine condition and a fine individual of the draft type; pulse about 60, temperature 103; left hip swollen up as in other cases; going around on three legs and sucking some. Treated him as the others, bathing and the injection of the antistreptococcic serum. Went out the next morning to see the fellow and he seemed to be improving. Got up alone. Gave another injection of 10 c.c. of serum and went home. Next morning received word the colt was worse, could not stand up and in acute pain, and died in a couple of hours.

Case No. 4.—May 30th, 8.00 A. M., 'phone rang, and on answering it, farmer said that a nice colt of his was sick and one hip all swollen up; cannot stand on it, and asked me to come and see what I could do for him. When I arrived found colt just about in same condition as No. 2. In the meantime I had sent and got some of Park Davis' nucilum solution and had my mind made up before to try it if another case presented itself. So I put on a bold face and went at it. Used the hot water as

with the others and made an intravenous injection of four ounces of normal salt solution and four drams of the nucium solution. Made five trips and gave the same dose each day. On the third day a nice improvement was noticed and the fourth still improvement. On the fifth I decided not to go back anyway for three days, as the swelling was mostly gone. Colt could stand on leg and run and play some, but leg still a little stiff. Would suck often; bowels regular, kidneys acting nicely. But all in vain. The owner turned the mare and colt into a pasture that afternoon, and in the corner of the pasture ran a slough with quite a ditch, in the bottom mud and water. Colt went down in the ditch and got caught in the mud and water, probably was there a large portion of the afternoon. When found at night was just about dead. Colt did not live long after they pulled him out.

ACTINOMYCOSIS OF THE SCROTUM OF A STEER.

By HENRY HELL, V. M. D., New Liberty, Ia.

Reported to the Iowa State Veterinary Association, Cedar Rapids, January 28-29, 1903.

On March 7, 1906, I was called to see a 2½-year-old blue black fat steer with a large swelling within the scrotum.

History—General condition would not indicate that any constitutional disturbances existed, the animal being one of the best in the feed lot. Owner had noticed the swelling coming on for three or four weeks and seemed to grow quite rapidly. The animal had been castrated when quite young and owner could not remember that any ill effects had followed this procedure. Owner was then advised that the animal would have to be cast for a more definite examination and that all indications were that surgical interference would have to be resorted to. Animal was cast and secured in lateral recumbency, affected side uppermost.

Clinical Diagnosis—Palpation revealed a well-rounded growth quite hard, somewhat oblong in shape, about the size of a large cocoanut, with apparently few adhesions to the adjoining tissue. All morbid conditions of the end of the cord were regarded as being highly improbable, as two years had elapsed since castration and the growth seemed to be a rapidly growing one. The probability of a true tumor was taken into consideration, but here the rapid growth and the firmness of the tumor did not seem to harmonize. As a rule, tumors containing a large amount of fibrous tissue grow slowly. Being unable to make a

positive diagnosis, decided to remove the growth in its entirety, thereby guarding against any recurrence regardless of its nature.

Operation—The usual antiseptic precautions were observed. Then an incision was made through the skin and sub-cutis from top to bottom on side of scrotum; the tumor then dissected free from the adjoining tissue, ligating all vessels as they appeared and keeping a sharp lookout for large vessels toward the proximal end of the tumor should any relation exist between the tumor and the end of the cord. This, however, did not prove to be the case. The tumor was almost entirely imbedded in fat. This made its removal quite easy. Wound was cleansed (but not sutured); animal was allowed to rise; made a good recovery without any further attention.

Pathological Diagnosis—"Macroscopy." On section found that the growth consisted of a wall or capsule about $1\frac{1}{2}$ in. thick and a cavity within filled with a small quantity of colorless liquid and cheesy flakes. The wall or capsule aside from looking a little more red in color would correspond to the ordinary inflammatory hyperplasia. The contents of the cavity were pale yellow flakes the size from that of a grain of rice to that of a navy bean and the consistency and general appearance of tubercular caseation. The small amount of liquid present may be likened to ordinary lymph as to consistency and appearance. From general appearance, it was thought that the growth was of tubercular origin, possibly the infection and subsequent displacement by gravity of the superficial inguinal lymph gland. The liquid present possibly being due to the liquifaction necrosis.

Microscopy—The specimen was sent to the Pathological Laboratory of S. U. I., and after examination there was informed that this specimen was so much unlike anything observed in human pathology that they were unable to make a diagnosis. Although the gross appearing being much like tubercular infection, the presence of tubercle bacilli could not be demonstrated. I then requested that a few slides be made and sent me so that I might examine them at the first opportunity. So in order that good slides might be had a few pieces of the growth were removed, and on examination of these slides the ray fungus *actinomyces bovis* were discovered and on further examination with the naked eye found the characteristic sulphur granules present in the cheesy flakes and the adjoining tissue, this constituting final positive diagnosis.

URETHRAL CALCULUS.

By W. G. CLARK, M. D. C., Marinette, Wis.

On the afternoon of June 27, 1907, I received a call to a farm about 8 miles from the city. The owner stated that he had a two-year-old colt that was sick and he thought there was something wrong with his "water." Suspecting that it was a case of indigestion, I drove out to the farm and found the patient in a small field. He was eating a little grass occasionally, and at short intervals would attempt to urinate, strain violently and pass a few drops of bloody urine. The penis was extended, relaxed, and quite cold to the touch. On rectal examination, I found the bladder enormously distended. I then attempted to pass a catheter and met with an unyielding obstruction about three inches below the ischeal arch, and by



manual examination could detect a hard, unyielding body of considerable size. The owner was informed that the colt had an urethral calculus and that the only chance of saving the animal was an immediate operation, to which he consented. The colt strained violently during and after the examination, and I was fearful that he would rupture the bladder before I could relieve him. Having no apparatus at hand to restrain the animal while operating and the critical condition of the patient not allowing time to secure any, a twist was placed on the nose and the owner instructed to hold the head up as high as possible. Then I made a free incision through the tissues down to the calculus. As soon as the urethra was opened the animal passed a large amount of urine and with little difficulty the calculus was removed which was ovoid in form and measured $1\frac{7}{8}$ inches long, largest diameter $1\frac{3}{8}$ inches and smallest 1 inch. The irregularities appearing on the surface were caused by the forceps in removal.

The operation wound was left open and the owner instructed to irrigate freely once daily with bichloride of mercury solution 1-2000 and dust the part with an antiseptic powder, and if any complications arose to bring the colt to the hospital immediately, and I may state here that I fully expected to see him down in two or three days.

The owner called at the office on June 30th and reported that the colt was doing nicely. At this time he was passing about three-fourths of the urine through the operation wound. On July 17th the owner called again and at this time the wound was nearly healed and only a small amount of urine escaped through the incision.

The colt made an uninterrupted recovery, and I never saw the case until about two months after operating when, passing the farm, I stopped and examined the colt. The wound was then completely healed and only a small scar remained to show the seat of operation.

The owner stated that for some time he had noticed that the colt passed a small quantity of urine at frequent intervals, but at no time had given any indication of pain or indisposition until the evening before I was called.

I have never observed a case of this kind in a colt of that age and but very few in older horses, and consider the size of the calculus in this case quite remarkable as well as the uninterrupted recovery without any complications.

CHRONIC HYDROCEPHALUS.

By J. F. MILLER, D. V. M., Oneonta, N. Y.

I was called December 26, 1907, to see a six-year-old gelding, weight 1,100 lbs., and used as a general purpose horse. The first symptoms were noticed on December 24, 1907, when he began to travel awkwardly and in driving would lean against the pole. In the stable, he would lean against the side of the stall. When he was led from the stable he collided with the door frame. He seemed to be unconscious of his surroundings, eyes dull, ears drooped, and there was inco-ordination of the fore-

legs. The forelegs were dragged when walking and braced while standing. His head was kept turned toward the left side, and while being led he would turn toward the left. He was unable to back and would remain in one position a long time. He responded slowly to the owner's voice. My diagnosis was chronic hydrocephalus. I gave an uncertain prognosis. I gave a physic ball (aloes 8 oz. and calomel 1 oz.) and a tonic treatment consisting of pulv. nux vomica, iron sulphate, gentian and pat. nitrate. The patient's condition was worse on December 28, 1907. He appeared more stupid and gait more uncertain. The owner stated that a good action of the bowels was obtained from the physic ball. There was frequent defecation on this date. Since that time he has been steadily improving. The only noticeable symptom now is that he handles the forelegs awkwardly going down hill. The nux vomica, iron sulphate and gentian are being continued.

TRAUMATIC PAROTITIS.

By Dr. GEO. M. WALROD, Storm Lake, Iowa.

Reported to the Iowa State Veterinary Association, Cedar Rapids, Ia., Jan. 28-29, 1908.

On December 28, 1907, a lady brought a pug dog to my infirmary for treatment. She said he had not eaten anything for four days, and was all the time trying to swallow and acted as if it hurt him. After carefully examining the case I diagnosed it as perhaps having a sharp bone in the throat. In the struggle, he spat out a little bloody mucus and then I got him to eat a little food, which was better than he had done for four days. This trouble came on suddenly. One day when the lady was down town with him, he came home in that condition. I could find nothing on the inside of the throat, but it seemed to cause pain when I pressed it on the outside. My prognosis was favorable after I saw him eat a little. I let her go back with him, and told her to let him have plenty of fresh air and return with him in a few days, which she did; but I was away, so she came again on January 7th. There was an enlargement at the inferior part of the parotid gland. I cut into it and thought I felt a sharp bone, but on closer examination I found a common sewing needle with about six inches of thread attached thereto which the dog had attempted to swallow. I removed the offending agent, disinfected the wound, and the dog made a good recovery.

CARCINOMA MULTIPLE.

By Dr. E. H. SCOTT, Johnson, Vt.

A gelding about twelve years old was turned to pasture as he did not show his usual spirit and did not carry usual flesh. About two months after turning out, he was noticed standing apart from other horses in pasture and not feeding. Writer was called third day from when trouble was first noted; found animal apparently bloated; had not passed fæces for some time. Temperature 103, pulse a trifle subnormal; diagnosis stoppage of bowels; gave morph. 4 gr., eserine $\frac{1}{4}$ gr.; animal died within short time without a struggle. Post-mortem revealed internal hemorrhage, intestines empty, abdominal cavity filled with blood, and numerous growths of small tumors about the size of marbles attached to mesentery also to outer wall; sent several to state laboratory for examination. Diagnosis: Carcinoma multiple.

OPEN TENDON SHEATH FROM NAIL WOUND.

By J. F. MILLER, D. V. M., Oneonta, N. Y.

On September 22, 1907, I attended a five-year-old gelding which, during the night previous, had become cast in the stall. When found in the morning a board with a nail in it was fast to the side of the foot. On examination, I found an open tendon sheath on the left hind foot at the fetlock joint, no doubt due to the nail. The wound was dressed daily with hydrogen peroxide and every second day with injections of tincture of iodine. The patient improved steadily and on October 12, 1907, a blister was applied to the part, which was repeated on October 24. The recovery was complete. There remained for a time an enlargement of the fetlock, but it has now entirely disappeared.

PRESIDENT DALRYMPLE CHOSEN.—The name of the president of the American Veterinary Medical Association is among the list of distinguished sanitarians who the Governor of Louisiana has chosen to represent that commonwealth at the forthcoming International Congress on Tuberculosis at Washington, D. C., September 21-October 12, 1908. We congratulate the state of Louisiana and we congratulate Dr. Dalrymple.

RECENT DATA IN VETERINARY SCIENCE.

(Continued from April REVIEW.)

BY DRs. LOUIS A. AND EDWARD MERILLAT, CHICAGO, ILL.

Chemical Caustics as Modern Surgical Expedients.—The modern veterinary surgeon with his modern knowledge of surgical pathology is very prone to overlook the great benefits that can sometimes be derived from the use of caustic substances in the treatment of both old and recent lesions. Amongst the many diseased conditions of animals where the knife is now destined to play the most important role by dispatching harmful elements at a single stroke there are many where the intelligent use of caustics will accomplish quite as much with a minimum amount of danger. These diseases are fistulæ, such as quitters, poli evils, etc., wounds that can not be perfectly sterilized with the weaker antiseptics, and various growths of a non-operable character. While there is no intention here to cast any reflection upon purely surgical treatment of such conditions the experienced practitioner soon learns that the discreet use of caustics is sometimes very beneficial where extensive cutting might have been unsuccessful. The practitioner who insists upon the total ablation of the lateral cartilage for quitter, for example, is sometimes reminded when things turn out bad that another practitioner cured a similar case without any operative intervention whatever, and how often are we reminded by clients that a certain powerful liniment (a veritable caustic) seems to heal up barbed-wire cuts much better than our own careful, painstaking, antiseptic routine of wound treatment.

The faults with surgical treatment of certain chronic fistulous conditions are that the surgical wound necessary to reach an underlying causative slough must sometimes be a large one, that it often can not be advantageously made, that it sometimes exposes new anatomical structures to infection, that in its depth the dead or dying tissues are not always recognized nor entirely accessible, and finally that extensive surgical intervention may accidentally transgress upon neighboring organs with disastrous results.

The advantages of caustic over purely surgical treatment although often limited are sometimes excellent. The caustic introduced carefully into every part of a fistulous tract destroys the infected granulations and brings them out some days later when they have separated from the surrounding living tissues, in the form of a burned tube—the proverbial “pipe” of the empyric. It widens the channel, leaves a much healthier condition to cicatrize and not infrequently brings out the necrotic centre upon which the chronicity of the fistula depended, quite as effectually as if it had been lifted out by dissection.

The practitioner does not need to make any apology for using caustics if he uses them with the full knowledge of the elemental principle that fistulous tracts direct their courses down to some underlying cause whose removal the caustic is intended to effect. The removal of this underlying cause as the initial or ultimate object of the treatment, places potential cauterization of fistulous tracts among the strictly scientific expedients, but if used to simply “burn out” tracts the intervention is quackery. The veterinarian without surgical skill and the charlatan were the chief adherents of the caustic treatment in the past, but to-day the foremost surgeons often adopt it as a convenient and effectual recourse.

In the treatment of lacerated wounds about the body or the legs the classical sterilization, drainage and suturing generally fails. The wound becomes infected, the stitches burst and the whole affair is much worse at the end of a week than when the operation was performed. With the caustic treatment the raw tissues are burned and thus thoroughly disinfected the burned tissues act as a perfect barrier against additional infection and when at the end of six days the dead coating falls off a clean, red, rosy, healthy granulation ready to cicatrize promptly has already formed, and the wound heals without further trouble.

In deciding between surgical and cauterant treatment excellent judgment should be displayed. In a wound located where there is little motion to disturb the sutures, where there is ample opportunity to submit it to certain disinfection, where a good drainage can be provided, and when scientific after care is assured, the classical treatment is of course preferable; but given a wound that must be operated upon in a dirty stable with insufficient help, where clean receptacles and water can not be easily procured and where the after care must be intrusted to

the stableman, then by all means apply the caustic, open wound method. Among the drugs and combinations especially useful in this connection are phenol, kerosene, gasoline, creolin, saturated solution of mercuric chloride in alcohol, equal parts of phenol, glycerine and tincture of iron, butter of antimony, etc., etc. These are applied with a brush or feather, sparingly, so as not to injure the environs and yet thoroughly enough to reach every part exposed. The application is repeated daily until a perfect coating is formed and then discontinued until the coating is cast off. Thereafter, mild astringents will answer until the cicatrization is complete.

In the treatment of fistulæ solid substances are preferable to liquids as their application can be better controlled; there is less danger of burning the surrounding skin. Copper sulphate, mercuric chloride, arsenic, and zinc chloride answer well for this purpose. These are used in the form of little tampons made by rolling the drug in cotton, gauze or tissue paper, and then forcing them as gently as possible into every part of the tract. They are of course contraindicated when the tract runs dangerously near to a synovial membrane or other structure whose cauterization would be a serious matter.

In the treatment of non-operable growths the caustic is the veterinarian's only resort. Carcinomatous, sarcomatous, actinomycotic and botryomycotic growths are sometimes controlled indefinitely by cauterants. Sometimes the growth is partially ablated and then the remaining portion submitted to this form of destruction. The vascular field in which these tumors are often located, the inaccessible position they occasionally occupy or the indispensable organs they sometimes implicate often precludes total ablation and thus justify the use of caustics.

Caustics may also be used to great advantage in the treatment of indolent superficial ulcers. By burning the layer of inactive, unhealthy cells a new, vigorous reaction may be stimulated underneath with the effect that normal cicatrization supervenes.

As a whole, the subject of potential caustics is of capital importance to the veterinary practitioner. It should be thoroughly understood in every detail and regarded as one of the significant chapters of our materia medica, and instead of being judged as an opponent of surgery it should be honored as one of its valuable adjuncts.

A Few Hints on the Castration of Ridgelings.—It is only during the last few years that cryptorchidectomy has been practiced extensively by veterinary practitioners. Previously, veterinarians rather avoided the operation and willingly consigned the ridglings they encountered to the traveling castrators who annually made their rounds through the country in search of patients. To-day many veterinarians perform their own cryptorchidectomies and approach the task much the same as they would any other major operation, and yet among those who only have occasion to operate upon one or two annually there is often some timidity displayed in each attempt. Despite the fact that the operation is generally lauded as a mighty trivial matter there are indeed few who will honestly claim that their first few operations were much to boast about. On the contrary, it is quite generally admitted by those who now have experience that a considerable number of patients were operated upon before absolute confidence was attained. The fact remains unfuted—in spite of the simplicity claimed—that those who operate upon many ridgling are generally skillful, whilst those who only operate upon one or two in a season generally bungle over the operation more or less awkwardly and sometimes either fail to find the testicle or else almost kill the patient every time they make the attempt. The difficulty of the operation is not so great, but as the finding of the testicle depends upon the ability to recognize it by the sense of feeling, some practice is absolutely necessary to its successful and especially its rapid and skillful execution. The novice, often after having failed to tie the patient advantageously, becomes confused by the uncertainty of his work, the tiring of the hands, and sometimes by the anxiety of the owner to whom minutes seem like hours, very frequently abandons the undertaking without having found the hidden testicle.

The castration of ridglings is so highly appreciated by the owners of country horses and is so profitable an operation that no veterinarian can afford to leave the cases go by default or to consign them to others. It is the duty of all to boldly undertake the operation at every opportunity after having given its technique a careful study, and as the season castration is now open, the writer has thought the time especially opportune to draw the attention to a few hints which may tend to make the operation as popular with the novice as possible. Hints are of no use to the old operators, the bridge that has carried them

safely over will not be abandoned; but to the inexperienced, the practitioner who only operates upon the ridglings met in his daily routine, there are certain features of the operation that might be profitably elucidated:

1. *The antisepsis.* Ridgling castration must be an aseptic operation at all hazards. By the execution of intelligent measures in this connection the novice will reclaim the ground he may lose by lack of skill. It is indeed remarkable how one can mutilate a ridgling with impunity in the frantic search for a well-hidden testicle, if the parts are not infected in the effort. One so often hears reports of ridgling castrators who are exceptionally successful in spite of their absolute ignorance of asepsis, and of veterinarians who are exceptionally unsuccessful in spite of their best efforts in the direction of surgical cleanliness. While such reports might at first seem to reverse the teachings of asepsis, a close investigation clearly shows that the former succeeds because of his dexterity and the latter fails because in addition to a lack of skill his conception of what constitutes adequate asepsis is often erroneous. In the matter of antisepsis, the practitioner who lacks skill from experience should make up the ground he loses thereby through the intermediary of absolute asepsis. Where he loses by bungling he should gain by cleanliness.

The following routine, while not constituting perfect asepsis, is the most practical course to adopt: (1) Provide a clean receptacle for a strong antiseptic solution to sterilize the knife and emasculator or ecraseur. A 1-300 solution of mercuric chloride solution is the most appropriate, despite the discoloration of the polish. The instrument should in addition to the immersion in such an antiseptic solution be frequently boiled and should be carried about in a clean wrap. The supposed harmful effect of mercuric chloride upon metallic instruments is easily compensated for by the reliability of the disinfection, by the harmlessness of such a strong disinfectant to the hands, and by the applicability of the same solution to disinfect the surgical field. By serving all of these purposes no other disinfectant to complicate the technique is necessary. One clean pail, containing as a solvent for the sublimate, a clean bit of water, preferably boiled water, is a simple outfit to serve so many purposes. Before any part of the operation begins the emasculator and the knife are placed in this strong solution together with a few pledgets of cotton to serve as sponges. (2) The hands are now

submitted to a thorough washing with soap and water, rinsed out moderately in the same strong solution, and then immediately covered with gloves, which being specially provided for the purpose of protecting the hands against contamination while throwing the patient, are previously cleaned by disinfection in formaldehyde gas. These gloves are worn until the operation proper begins. (3) Cast the patient in a well-selected plot where dust and flying particles are not likely to fall into the surgical region. When the patient is secured and rolled into position sprinkle the body with water, especially posteriorly, and then spread the water out with the gloved hands. This precaution is to prevent flying hairs, which, in the spring months, are always legion. (4) Remove the gloves and wash off the surgical field with the strong solution, using the pledgets of cotton which are cast aside when used and not carried back and forth from pail to patient. (5) Just before making the incision and again before putting the hand into the inguinal canal rinse the hands in the antiseptic solution. (6) Thereafter do not touch any objects with the hands except the surgical field. (7) If oil is used as a lubricant for the hands, it, too, must be safely disinfected. Recently boiled linseed oil will answer the purpose.

2. *The technique.* The incision should be no less than five inches long so as not to handicap the hand in a pinched-up opening. The incision is one inch from the raphe opposing the scrotum of the other side. To avoid annoying bleeding the incision should be shallow, including only the skin and the dartos. Just beneath the latter are large vessels whose cutting or tearing would at once complicate matters. The incision being made, the inguinal canal is torn open with the fingers which are directed downward and well forward just beneath the skin until the hand is buried six to nine inches according to the size of the patient. When the hand is thus buried the tips of the fingers should be easily felt under the skin. This is one of the points emphasized by Farmer Miles, who said in this regard: "When the hand is thus placed the fingers should be only a half-inch from the black skin." The most common error made is that of plunging the hand directly into the abdomen, in a downward direction from the incision or else before it has been buried deep enough. The hand being thus placed it is rotated a few times to gain more space and more comfort and then a thin place in the abdomen is searched for by palpating here and there with the index finger. When found, a perforation is made and an

attempt to find the testicle begun. The finger, pushed through at full length, "wipes" in various directions in the effort to hook up some of the testicular appendages or the testicle itself. Generally the intraabdominal pressure brings some of these toward the perforation, and when a little assistance is given with the finger the testicle actually forces its way out. When these manipulations are negative the middle finger is also passed through the perforation and a diligent search is made among the viscera for a thin wire-like cordiform structure—the vas deferens—which is hooked up by or else pinched between the two fingers, which then assisted by the intraabdominal pressure easily bring the testicle through the perforation. When there is any difficulty encountered in pulling the testicle out on account of the grip being inadequate the fingers are crossed over each other which gives a much firmer grip over the vas deferens.

Anomalous conditions must, however, always be expected. The testicle may be found in the canal (high flanker) or only the epididymus may be hanging through the internal abdominal ring, sometimes stretched out at some length while the body of the testicle remains within the abdomen. As the epididymus of this variety of ridglings is covered with the tunica vaginalis it may, in fact often is, mistaken for the testicle itself. But in view of the fact that the removal of the epididymus alone will not modify the patient's impulses it will be important to remove the testicle from its trapped position. This can never be done by direct traction upon the epididymus. It will be necessary to make a perforation near the ring and hook out the testicle through it, bringing the epididymus backward through the ring and out with the testicle itself. Another condition to be on the lookout for is the cystic varieties—the "internal hydrocele" of Miles. When these are found larger than a baseball the wall should be ruptured to diminish the volume and thus limit the size of the perforation necessary to bring it through.

3. *Preventing prolapse of the intestines.* It is always advisable to take some precaution in this direction in every case of intra-abdominal cryptorchidism, but especially when the perforation has been accidentally or else intentionally made large enough to admit a loop of the bowels. While the patient is still down and the legs still parted wide a severe straining may send a loop into the canal unnoticed, on which account it is advisable to keep a firm pressure with the hand upon the inguinal canal over the seat of perforation until the legs are untied and the patient

is ready to jump to its feet. When the perforation has been made large, packing the canal should be practiced. Iodoform gauze in abundance is packed piece by piece and carefully adjusted, from the point of perforation to the incision. For the sake of economy antiseptic cotton may be used for the lower part of the canal, but gauze is the only safe substance to use higher up. The packing is retained by sutures across the incision, and it is generally safe to remove it thirty-six hours later.

4. *After care.* Gentle exercise should be insisted upon, beginning the day following the operation. Turning to pasture or into the paddock is not sufficient, owing to the inclination to stand about instead of taking the necessary walking exercise. While it may seem plausible that absolute quiet is desirable after abdominal operations of this character, experience teaches the opposite and dictates that exercise as almost indispensable. Exercise prevents stiffness, chill, œdema, and the localization of septic foci in the canal by promoting the discharge wound of secretions.

AN INVIDIOUS CALL.—One afternoon the proprietor of an animal store said to his young clerk:

"Tom, I'm going upstairs to work on the books. If any one comes in for a live animal let me know. You can attend to selling the stuffed animals yourself."

About half an hour later in came a gentleman with his son and asked Tom if he could show him a live monkey. To the customer's amazement the clerk ran to the foot of the stairs and yelled:

"Come down, come down, sir, you're wanted."—(*Judge's Library.*)

THE DURATION OF LIFE.—The duration of life with the horse, and with other animals of the higher species, is proportionate to the time expended in their growth. All the larger animals live five times as long as the time expended by them in reaching maturity. Thus: The camel grows for 8 years and lives 40; the horse grows for 5 years and lives 25; the ox grows for 4 years and lives 15 or 20; the lion grows for 5 years and lives 20; the dog grows for 2 years and lives 10 or 12; the man grows for 20 years and lives ——. By a physical analogy, therefore, the ordinary life of a man should be 100 years at least.

ARMY VETERINARY DEPARTMENT.

A LAST CALL FOR THE PASSAGE OF THE ARMY VETERINARY BILL.

As Congress is likely to adjourn by the middle of May a last call should be sounded for a vigorous effort to have the bill "To increase the efficiency of the army veterinary service" enacted into law. This bill has passed the Senate (No. 654, Warren), and was introduced into the House by Mr. Hull, the chairman of the Military Committee, where it now rests.

We wish to say a few words in favor of this bill, as we are well aware of the fact that it has few friends among the army veterinarians. It benefits primarily the three oldest army veterinarians who would be retired under its provisions, and the next beneficiaries would be the ten older colleagues who have over fifteen years of service and would draw at once the pay of a first lieutenant without further examination. These ten veterinarians are naturally in favor of the bill. There are only two other veterinarians who have over ten years of service but less than fifteen, and these would have to go through the prescribed examination in order to gain the same end. These two have both passed the examination for first class, while among the ten with over fifteen years are five that either failed or declined to take the examination, and, in consequence, had to accept the position as second class, which was discontinued in their favor by the Act of Congress of February 2, 1901. One may look upon this particular provision of the bill as unjust, and some among us do so in most outspoken terms. But let us be generous as veterinarians if the government is disposed to be generous, and may we gracefully count their longer years of army experience and toil as an equivalent to their lesser accomplishments in scientific veterinary medicine. The examination in which they failed was no child's play anyway.

Now come our friends, the representatives of the younger set, twenty-eight in number, the majority bearers, who came into the army in the years from 1900-1907. It is a pleasure to look into their intelligent faces and observe their polished

manners, and the older man is at once willing to see in every one of them a Veterinary Surgeon-General, U. S. Army, of the days to come. They are out after a commission; they want rank. The present bill does not bestow upon them these desirable attributes; they will have to wait some years to accumulate the long, ten years of service marked in the bill as the turning point for something better. Above all, there is the "dropping clause" in the bill, which reads as a dark and threatening chapter. Can anyone blame these young men, who wish to look hopeful into the future, for not being enthusiastic over its features?

But, to come to the issue, let us also ask if there is anyone among us with a strong enough faith in human nature to hope that a truly ideal bill could be drafted that would please or satisfy all concerned? We have had ample experience in this line for years, and believe it is next to impossible to even agree among ourselves. How much less can we expect of the general staff to find the happy medium that would strike a pleasant cord in all of us. We may candidly confess that we agree with our colleagues and that this bill was a great disappointment to us, but we also think after careful deliberation that as a temporary measure—and that is all it is—it embodies some good features that bespeak well of the future. An army veterinary corps, bureau, division, or whatever one may choose to name it, is just as much an actual impossibility now as it was in 1901, without just such or similar a bill as this as a stepping stone, in which we can be tried as to our capabilities and prepared for something of greater promise and added responsibility.

So let us be sensible and not kill this bill by either opposition or inactivity, but make a final effort to have it passed by the House in the evening of this session. We call on our friends, in and out of the army, not to say it is too late, but to press on with the shoulder against the wheel, and have this little bill lifted out of its resting place, acted upon and passed.

O. S.

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PERSONAL NOTES.

Dr. Walter Fraser, 3d Field Artillery Reg., has just returned to Fort Myer, Va., from a three months' leave spent in California, which he has greatly enjoyed.

Dr. Olaf Schwarzkopf, 3d Cavalry, has returned from foreign service in the Philippines, and is now stationed at Fort Sam Houston, Texas, near San Antonio.

Dr. Richard Power, A. C., who has been ill with neurasthenia in the Division Hospital at Manila, P. I.; has been transferred to the U. S. General Hospital, Presidio, San Francisco, where he is now improving slowly. As he is another victim of the ravages of a tropical climate, we have full sympathy with the doctor and wish him a speedy recovery and a healthful station in the home land.

Dr. Coleman Nockolds, 1st Cavalry, has arrived in the Philippines and is stationed at Camp Stotsenburg together with Dr. W. Pick, 1st Cavalry.

It is estimated that there are 30,000,000 horses in the United States.

ANIMAL VISION.—Dr. Alexander Schaefer investigated the vision of many animal species and found that the size of the eye-ball is the principal factor of acuteness of vision. The bovine species has the sharpest sight. The second place is occupied by man and the horse, which have nearly equal visual powers, the third by the sheep. Small and especially small-eyed animals, whether mammals, birds, amphibia or reptiles, have very poor sight. Owls and buzzards are the only birds that possess great acuteness of vision. The low positions in the scale occupied by dogs, cats, bats and many fishes which feed upon living prey is contrary to all expectation. In the case of dogs and certain fishes lack of sharpness of vision is due to the great size of the retinal elements. It has long been known that dogs have such indistinct vision that, as a rule, a dog is not able to recognize his master by sight alone.

These results emphasize the distinction between vision of motionless objects and vision of moving objects. The latter faculty is necessarily keen in all animals of prey. A cat is little affected by the sight of motionless objects, but pounces on a fleeing mouse or a trailed string instantly and with unerring precision. A trout will rise to the most impossible artificial fly if its motion resembles that of a living fly.

The inclusion and position of man in the series are based upon the ocular measurements given by Helmholtz in his "Physiologische Optik."—(*Scientific American*.)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

HERMAPHRODITE PUG [*W. H. Flook*].—A few months' old pup, which was quite healthy, showed the end of a penis just visible between the labia of the vulva. He died shortly after with pneumonia and the post mortem showed a penis measuring approximately three centimeters in length and three centimeters in circumference. It contained a penial bone about eleven millimeters long. There was no obvious passage and it was at first doubted if urine passed through the penis. The abdomen was squeezed and a little fluid was seen above the base of the penis. On opening the abdomen the ovaries and uterus were found to be normal.—(*Veterinary Record*.)

INTUSSUSCEPTION IN A PONY [*H. Pickworth, M. R. C. V. S.*].—Case of six years' old dun pony, which had colics, tympanitis, etc. Rectum empty; physic, chloral, morphia gave only temporary relief. Death; post mortem: Ten or eleven inches of ileum invaginated in the cocum. Gangrene had set in.—(*Veterinary Record*.)

CARBOLIC ACID IN THE TREATMENT OF BACTERIAL DISEASES [*J. W. Pollock, M. R. C. V. S.*].—Carbolic acid is, for the author, one of the best, if not the best, antiseptic for internal use against bacterial diseases. He relates the result he has obtained in a case of tetanus, not so acute as sometimes he has seen them, but having jaws so tightly closed that they could scarcely be separated one inch. The animal, however, could suck up sloppy mash and water. As he had already been sick for some time, anti-toxin treatment would be useless and he received carbolic acid as a trial. Being able to suck water, two or three quarts were allowed at a time, the horse got an ounce of the pure acid in every two days. After a few days improvement set in. The treatment was followed for six weeks without any symptom of poisoning and recovery completed after two months.

A case of septicemia in a cow, due to retention of the placenta was treated with carbolic acid. The animal had a dead calf a week before. She was suffering with septicemia and septic mastitis. She also had septic abscesses on the haunch and croup. The internal treatment consisted in full doses of carbolic acid three times a day and local external carbolized washes and dressings. The cow steadily improved.

In contagious abortion of cows, with Mr. Pollock, carbolic acid treatment and disinfection has given him good results. He also recommends it in stomach troubles in cattle and dogs and refers to the remarks of Finlay Dunn in his veterinary medicines in relation to its use in the treatment of cattle plague.—(*Veterinary Record*.)

SYMPTOMS OF LIGHTNING SHOCK [*F. Hicks, M. R. C. V. S.*].—In a paper read before the Lincolnshire V. M. A., the author said: "In cases where one is called in to give an opinion as to the cause of injury by lightning, one may find some of the following symptoms: Pitiful expression, dilated pupils, discharge from both eyes and nose, paraplegia or hemiplegia, drooping of the ears, one or both, fractured limb, peculiar gait, derangement of the cerebro-spinal system, not unfrequently the shoes are slightly magnetized.

On post mortem (external)—Cadaveric rigidity not unfrequent at the usual period, more commonly immediately after death. Pupils may be largely dilated, contracted or unequal. Aborescent markings on the surface of the body are not unfrequent. Singeing of the hairs, echymoses, lacerations or other indications of injury may be present or absent.

(Internal) The aborescent markings, when seen, after removal of the skin, do not follow the course of the capillaries or other anatomical structures but are caused by the discharge and indicate the path taken by it. In some cases of death, examination fails to show the proximate cause of death, in others there are indications of cerebral hemorrhage or disorganization of brain structure. Blood coagulates immediately after death in the majority of cases, yet occasionally it may be found in a fluid state. Membranes and vessels of the brain are sometimes hyperæmic and in others is extravasated. Subcutaneous ecchymosis are frequent. Putrefaction commences early.—(*Veterinary Record*.)

AN UNCOMMON DISLOCATION [*J. J. Griffith, A. V. C.*].—

Mare, aged nine years, slipped on pavement, fell and got up with difficulty. No fracture is detected. Rectal examination

negative. Patient is in great pain, keeps his leg perfectly still, heels raised. Great tenderness on the near hip joint, which is more prominent than the other. After three weeks, more weight is put on the leg, the hip joint is much more prominent, and the point of the hock is higher than that of the other leg. The animal is eventually shot. The post mortem revealed a dislocation of the hip joint, outwards and forwards with few spicules of bone around the notch of the head of the femur, which has its cartilage all worn. There is callous deposits thrown out and fibrous adhesions already existing.—(*Veterinary Journal*.)

FRACTURE OF THE HEAD AND INTERNAL TROCHANTER OF THE FEMUR IN A MULE [*J. J. Tapley, A. V. C.*].—Mule found lying on smooth concreted floor of her stall, is unable to rise. Lifted up the near hind leg is carried backwards, the stifle is inflamed and patella dislocated upwards over internal lip of femoral trochlea. The luxation is reduced. Mule is placed in slings. After three days a second examination is made. It reveals great pain in forced abduction, and on pressure on the inside of the femur, well high up in the groin pain is manifested. After three weeks the mule is destroyed. Post mortem: Rupture of the left pubio-femoral ligament and tearing with it of a portion of the articular surface. The internal trochanter is also fractured into four small pieces.—(*Veterinary Journal*.)

FRACTURE OF THE CUBOID IN A MULE [*W. E. Schofield, A. V. C.*].—A mule was harnessed to an ammunition wagon. She slipped and fell, the near hind leg being caught in the spokes of the wheel, which, however, did not run over the leg. The next day the near hock is much swollen and the animal carried no weight on the leg. After being kept in slings for some time, the animal was disposed of, as crepitation had become very evident and fracture was diagnosed. At the autopsy extensive acute arthritis was exposed with fracture of the cuboid into three pieces.—(*Veterinary Journal*.)

CASE OF STRANGULATED UMBILICAL HERNIA [*C. W. Townsend, M. R. C. V. S.*].—A pedigree Shire colt had an umbilical hernia. The author operated on him first "by transfixing the hernial sac with a tight ligature after first penetrating the sac as high as possible with a needle and cutting off the protruding ends." This failed. A second operation was then performed, "closing the hernia by applying a wooden clamp to the hernial sac." The only result obtained was a reduction of the hernia but the umbilical ring remained open. It was then decided to

eradicate the hernia by suturing the ring. To prepare the animal for the operation he was brought to the author's infirmary, when one evening he was taken with evident indications of strangulation and it became necessary to operate at once. The colt was cast and chloroformed. All kinds of attempts at reduction were unsuccessful and even taxis per rectum made while external manipulations were applied failed to bring good results. The sac was open, but the intestines were so much inflated with gas that reduction was impossible, even after enterocentesis had allowed its escape. Herniotomy had to be performed. The ring slightly enlarged with the herniotome, the strangulated intestine was finally returned into the abdomen. The wound was sutured and a tightly fitting clamp put on the hernial sac. Death took place on the fifth day after the operation, with septic peritonitis and inflammation of the small intestines, for a length of two feet. No doubt this was the seat of the strangulation.—*Veterinary Journal*.)

A CASE OF MESENTERIC ABSCESS DUE TO STREPTOCOCCI INFECTION [*Capt. W. A. Pallin, F. R. C. V. S.*].—This is the history of a thirteen years' old gelding which had abdominal pains of no very acute form, with elevation of temperature. During the whole sickness these presented some variations. At some time the colics being quite severe and acute, when the animal would assume the sitting position and get some relief. The presence of a mesenteric abscess was suspected. Loss of flesh was well marked and the horse so on became emaciated. Death took place after an illness of forty-seven days. At the post mortem the immediate cause of death was exposed; peritonitis, due to the bursting of a large mesenteric abscess in the abdominal cavity. When dissected the abscess weighed 11 pounds and 4 ounces. It had a capacity of at least one and one-half pints. Its walls, in some places, were three inches thick. Examined with the microscope, it was found that the abscess was due to streptococci infection.—(*Veterinary Journal*.)

ACCIDENTAL LIGATURES ON EXTREMITIES OF SMALL ANIMALS [*T. F. Prime, M. R. C. V. S.*].—Records of two cases. 1st—An Irish terrier had a wound round the forearm, which is getting worse. Close examination shows a piece of fine silk tied tightly round the leg. This is cut and the leg gets well. 2d—Fox terrier has had several attacks of eczema and now he has a small sore on one of his toes, which he licks and bites all the time. Carefully looked at, an elastic ring is found imbedded in the

skin. This is cut off and the dog gets well rapidly.—(*Veterinary Journal*.)

CREOSOTE POISONING IN A DOG, RECOVERY [*T. F. Rime, M. R. C. V. S.*].—Dog is run over and taken to bird specialist for treatment. He gives the owner an ointment to put on the bruises and some pills containing creosote. After taking four of them the dog is taken very ill, vomits and has diarrhoea. When the writer sees him he is in a state of collapse and the strong odor of cresote coming from him tells the cause of the trouble. Stimulants with alternate doses of sodæ sulphatis brought him to and saved him.—(*Veterinary Journal*.)

PERMANGANATE OF POTASH AS A DRY DRESSING [*J. Stewart Wood, M. R. C.*].—The author recommends the following as his favorite formula in ordinary broken knees: Potash permanganate pulverized, one drachm; boric acid, pulverized, from one to two ounces; carbo animalis, two drachms. For quittor, canker and thrush the results are invariably good.—(*Veterinary Journal*.)

OVARIAN ABSCESS IN A MARE [*Capt. Barry*].—Ten years' old black mare dies suddenly. At the post mortem four gallons of fluid are found in the abdominal cavity. Towards the left ovary the connective and surrounding tissues are infiltrated with bloody fluid. The right ovary is greatly swollen, soft and gelatinous, the left ovary is a large mass of soft blood stained gelatinous material. For the author, an abscess had formed in the broad ligament of the left ovary, bursted, caused hemorrhage and set up acute peritonitis, the cause of death.—(*Veterinary Journal*.)

FRENCH REVIEW.

BY PROF. A. LIAUTARD, M. D., V. M.

A CASE OF BOVINE DISTOMATOSIS WITH PROGRESSING CACHEXIA AND EXTENSIVE PULMONARY LESIONS [*Mr. Regnier*].—A middle sized, nine years' old cow is suspected of tuberculosis. She is very thin, presents no apparent alterations of the lymphatic glands, no swelling. The slightest movement promotes violent coughing, followed with deglutition. On percussion there is sub-dullness on the right side only. Auscultation is normal on

the left, while on the right numerous crepitant râles are heard. Tuberculin is injected twice, a week apart. No reaction at the first injection and at the second only a pseudo-reaction is obtained and confirms a diagnosis of tuberculosis. The post mortem exposed the lesions of a distomatosis in the third stage. Abdomen—no indications of flukes in the cavity or in the blood vessels. There is a slight hypertrophy of the liver, which, when incised, allows the escape of a yellow-greenish pus from the biliary ducts. This pus contains living parasites. Thorax—all the organs are healthy except the right lung in which lesions of various stages are found, some of them showing a few flukes.—(*Revue Gener. de Medec. Veterin.*)

A CASE OF PRIMITIVE BILATERAL CANCER OF THE KIDNEYS IN A CAT [*M. M. Auger and Roquet*].—This form of cancer is seldom observed in our domestic animals, and when present, it is generally unilateral. It is only by exception that primitive cancer is found existing on both sides. At any rate, if renal tumors are difficult to detect, specially in small individuals, where external manipulations are only possible, such was not the case with this animal where the neoplasm had acquired enormous dimensions. The subject was a three years' old cat, which had the following history: Always very fond of meat, he had lost his appetite since three weeks, and now only takes a little water during the day. He is said to have lost much flesh. On examination he is found weak and able to stand only with difficulty; his breathing is normal. The abdomen is enlarged but differently from the dropping belly of ascitis, as with him the enlargement exists in the middle and the upper part of the abdomen. This is not painful; but immediately back of the ribs on each side is felt a big, elongated mass, slightly adherent and yet more movable than a kidney. With the animal on its back, the condition of the neoplasm is better made out. A serious prognosis is made out and the owner orders the animal destroyed. At the post mortem the kidneys were found the seat of the trouble. They entirely occupied the whole lumbar region and were enormously developed, the left weighed 175 grams and the right 190. They both were the seat of encephaloid carcinoma.—(*Journal de Zoo-tech.*)

SUBLUXATION OF THE TENDON OF THE POSTEA SPINATUS MUSCLE [*Mr. P. Berton*].—While galloping two horses knocked against each other so violently that both were thrown down. They immediately got up. One apparently unhurt, the other lame

on three legs, the left foreleg refusing to carry any weight. Except the scratching of a few hairs on the upper third of the arm, nothing can be detected on the examination of the lame leg. It is carried forward, rests on the toe and the various joints of the leg are slightly flexed. The movements of flexion, extension, abduction and adduction are very painful, but yet sufficient to exclude the idea of a fracture or an articular dislocation. It is with great difficulty that the horse is made to walk to his stable. The next day the point of the shoulder is a little swollen, principally towards the trochiterian prominence. Lateral movements are very painful and the horse rebels against them. This condition remains for a few days, and the swelling subsiding under treatment of absolute rest and cool applications, the pain gradually passes away. Only then the true nature of the trouble is made out by detection of an irregular, sudden and jerky displacement of the tendon of the *postea spinatus* on the convexity of the trochiter over which it normally glides before its insertion below it. The tendon giving the sensation of a little elongated mass is easily detected and may be displaced up and down with the fingers that hold it. This is not painful. The animal can walk and even trot on a smooth ground, but now and then, every ten or fifteen steps, the leg suddenly gives way, accompanied with a limited projecting outward of the superior extremity of the humerus, and then everything returns to normal action. This intermittent lameness gradually disappeared and soon the animal resumed his work. During the whole time the muscles of the shoulder kept their normal size and condition without any mark of atrophy.—(*Revue Gener. de Medec. Veter.*)

HERPETIC DIATHESIS IN A DOG—OBESITY SIMULATING ASCITIS [*Mr. L. Magnin*].—The subject was a three years' old slut. Her condition was as follows: Exceedingly fat, her shape and form have disappeared under enormous deposits of balls of fat and her abdomen drooping resembles that of an animal with dropsy. A kind of fluctuation is detected. The animal is unable to take any exercise; when she moves her breathing becomes very laborious. She has great thirst. To be certain of the presence of fluid in the abdomen, an exploring puncture is made. It is negative. We have to deal with a lipoma or layers of fat in the abdomen. Under a severe diet, the animal loses some flesh, but finally she is destroyed.

At the autopsy, the mesentery was found as a mass of fat, several inches thick. There was no liquid in the abdomen but fat

everywhere in thick layers. The liver was three times its size and fatty. The pleura was also covered with fat, and in the connective tissues it is so abundant that it looks like adipous. The slut was covered with herpes and was a handsome type of an herpetic patient.—(*Rev. Gener. de Medec. Veter.*)

SUB-CONJUNCTIVAL INJECTIONS OF SUBLIMATE IN THE TREATMENT OF PERIODIC OPHTHALMIA [*Mr. Ball*].—It is more and more admitted that periodic ophthalmia is but iritis, whose inflammatory manifestations of the various media of the eye are secondary phenomena, depending on the microbian inflammation of the iris. The author in acute attacks uses the following treatment: Blood letting at the angular blood vessel of the eye, instillation of atropine, calomel internally, and protection of the eye from the irritating action of light by a bandage. This therapy needs to be completed by a powerful local irritation. Sub-conjunctival injections of sublimate is resorted to. It was applied to five horses. First the preceding treatment and then the injection of 1 c. c. of sublimate solution at 2-1000 was made under the conjunctiva. The technic of the operation is as follows: The horse is held with a twitch on his nose, the eyelids kept apart with the speculum, the needle of a Pravaz syringe is introduced between the conjunctiva and the sclerotic, one-half a centimeter deep, and the injection carefully and slowly pushed in. Great chemosis occurs. The horse closes his eye, tears are abundant, and pus is formed, which glues the eyelids together. These symptoms last four or five days, but the day after the injection the eye gets clearer, and in about six days all inflammatory manifestations have disappeared and the eye is, and remains clear. Of course old lesions observed previously are still present.—(*Rec. de Medc. Veter, Milit. and Rev. Gene.*)

GUN SHOT WOUND [*Mr. Metifiot*].—A mule was shot through the withers two or three centimeters below the line of the back. The ball follows a straight course parallel to the superior plan of the thorax, from left to right, with a slightly inclined direction from upwards downwards. The mule does not seem to mind the injury, she moves at all gaits without difficulty; the region is not painful, there is no heat, no swelling. The wound of entrance was circular, even and not ragged. That of exit elongated and scarcely larger. No treatment was applied. The mule was placed on observation. In ten days she resumed work. The situation of the wounds, entrance and exit, being nearly on the same plane, in the vertebro-costal groove, on a level with the

seventh and eighth dorsal vertebræ, the course of the ball seemed to have been straight, although it probably passed through the inter-spinal ligament that unites the spinous processes of those vertebræ.—(*Bullet. de Medec. Veter. Militaire and Rev. Gen.*)

CHRONIC MAMMITIS BY FOREIGN BODY IN A MARE [*Prof. G. Petit*].—A mare had a large swelling, warm and painful in the region of the mammæ. There is fluctuation. A first free incision is made without result. The right mammæ becomes indurated, and there remains a fistulous tract. A large excision in the entire diseased mass is made. A cut made in the center exposes a little bit of straw. Entered through one of the galactophore canals, it has given rise to a severe attack of mammitis, terminating with progressive induration of the gland, which then had the aspect of a true tumor. Histological examination showed the ordinary lesions of sclerosis with atrophy of the glandular structure.—(*Bullet. de la Soc. Cent.*)

FRACTURE OF THE COTYLOID CAVITY WITH RUPTURE OF THE COXO-FEMORAL LIGAMENT [*Mr. Edmond*].—A horse in jumping touches the obstacle and falls, quite easy, on the left side. After a few moments he gets up and remains immobile, saving his left hind leg and resting on his toe only. He moves with great difficulty and his appearance is that of an animal with a fracture. Yet there is no abnormal mobility, no great pain on the muscular masses. There is no drooping of the haunch and still crepitation is heard readily at a distance. Rectal examination gave poor results. Nothing is detected on examination of the muscles or bones of the croup or thigh. There is, however, a deep muscular depression on the middle of the posterior region of the superficial gluteus muscle. Fracture is diagnosed but so far the location is not made out. The horse is placed in slings. He rebels against them, struggles and falls on the left side, this time quite heavily. He is raised and slings put on him again. This time he accepts them. After a few days a new rectal examination is made. A big diffused swelling is detected on the left side, back of the great sciatic notch. There is no change in the condition of the leg except that it shows a lateral switching, like a pendulum. No weight is put on the leg. Loud crepitation is heard with the slightest movement of the leg. The horse is put out of his misery. At the autopsy the muscles of the thigh and the intramuscular cellular tissue were gorged with yellowish serosity. A large hematoma closes the left obturator foramen. There is frac-

ture of the neck of the ilium and comminuted fracture of the cotyloid cavity with rupture of the two fasciculi of the coxo-femoral ligament. The head of the femur has its cartilage worn away and the capsular ligament is torn.—(*Bullet. de la Soc. Cent.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

CONCERNING THE ALLEGED INJURIOUSNESS OF THE FLUID CONTENTS OF THE ECHINOCOCCUS VESICLE (LIQUOR HYDATIDOSUS) [*Dr. P. Gherardini*].—The investigations of Gherardini verify throughout those of Joests, upon the same subject. As a result of these experiments, Gherardini arrives at the following conclusions:

1. That the fluid contents of the echinococcus vesicle has no hæmolytic action upon the red blood corpuscles of the domesticated animals.

2. It contains no substance which possesses agglutinating properties.

3. It does not influence the coagulating properties of the blood.

4. The cystic fluid has no destructive effect upon the red blood corpuscles; on the contrary, it seems to have a certain preservative action on those elements.

5. It contains no toxine (leucocidine) which kills the white blood corpuscles.

6. It contains no chemical substance which depletes the blood and muscles of their normal albumens.

7. It contains no specific albumen which can produce antibodies (precipitins) in the organism.

These results induced the author to investigate whether the contents of the echinococcus vesicle possessed any injurious effects. For this purpose he employed two series of experiments, and on the ground of those investigations he arrived at this conclusion:

8. The inoculation of rabbits, guinea pigs and fowl with the contents of these cysts produced no intoxication.

9. Repeated inoculations with the cystic contents did not produce a chronic intoxication in either guinea pigs or rabbits.—(*Berliner Tier Wochen.*, No. 18, 1907.)

CHRONIC URÆMIA IN A DOG, RESULTING FROM PRIMARY CARCINOMA OF THE LEFT KIDNEY [*Dr. Habacker*].—On examination of the living animal a convex object was plainly felt behind the left costal arch and which upon palpation was diagnosed as a floating tumor with an uneven surface. There was a slight amount of albumen present in the urine. After the lapse of three weeks the symptoms of uræmia became more and more apparent. The animal emaciated and finally died. Post-mortem examination revealed primary carcinoma of the left kidney with metastatic cancerous formations in the lungs. The case was interesting, in so far as that primary carcinoma of the kidney is a rarity.—(*Tierärztliches Centralblatt*, 1907, No. 20.)

ENTERITIS CHRONICA PSEUDOTUBERCULOSA BOVIS, OR THE "JOHNESCHE SEUCHE" IN NORWAY [*H. Horne*].—The last number of the Norwegian Veterinary Journal reports that the pseudotubercular enteritis (Bang) is present in Norway. The case in question was a young native cow which had suffered a chronic diarrhœa and consequently was destroyed as being incurable. At the autopsy the only pathological lesions found were confined to the small intestine. The mucous membrane of this portion of the alimentary canal was swollen and puckered, besides presenting in other respects the characteristic lesions of the above-mentioned disease. The author was able to find in smear preparations from the intestinal surface (epithelial layer) numerous and resisting bacilli. This is the first case of the Johne-Frothingham or Bang paratuberculosis of the intestines of cattle, up to the present, which has been discovered in Norway.—(*Norsk Veterinærtidsskrift*, S. 72, 1908.)

REQUIRING CONCENTRATION.—Lord Elgin, who was viceroy of India from 1894 to 1899, was by no means an expert horseman, and when out riding all his attention had to be concentrated on his steed. On one occasion he was riding near Simla, when an aide-de-camp approached him and said: "Excuse me, your excellency, but Mr. X (naming a prominent official) desires to speak to you on important business." As there was no answer, the messenger repeated the sentence in a louder tone, upon which Lord Elgin turned sharply round and startled the aide-de-camp by shouting "Great Scott, man! Don't interrupt! Can't you see I'm riding?"—(*Bellman*.)

CORRESPONDENCE.

VETERINARIANS AND DOCTORS OF HUMAN MEDICINE AFFILIATE.

Cleveland, O., April 12, 1908.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRs—Being interested in the society news, I thought it might be of interest to the readers of the REVIEW to know something of what the Cleveland Veterinary Medical Association is doing. We have been in existence since 1901, and through the influence and work of the association Cleveland had the pleasure of entertaining the A. V. M. A. We turned our attention to municipal meat and milk inspection; brought the matter to the attention of the committee on sanitation of the Chamber of Commerce, also the Academy of Medicine, and by agitation and facts presented, we now have a code to govern such matters with three veterinarians in control and a very much improved condition along these lines. Our milk inspection work is spoken of in B. A. I. Circular 117 as one of the practical methods of improving the milk supply, and while it is not all we hope to make it, we will continue to improve on same. As veterinarians each one of us individually must or ought to become interested in such work, and, as practitioners, take some part in the great work of sanitary and lawful regulation of many things pertaining to public health. We should show the public and medical profession that we are alive to the great work to be done.

We feel our need of closer alliance to the medical profession, and at a little banquet our association held a short time ago we had with us several physicians. One spoke to us on immunity (general). This was very interesting and instructive. He was a teacher and had given much time to this question. The other physician and bacteriologist, who had traveled in Europe, attending different schools and congresses, talked to us along the lines which the veterinarian could be of help to his

profession. And again, the International Congress for Tuberculosis, it seems to me, emphasizes our alliance to the medical profession, and I shall have to quote "that no person is esteemed by others above the estimation of himself, and no calling is esteemed by others above the estimation placed upon it by its followers. And no class, calling or profession commands the respect of the world at large unless they themselves first respect their calling." This being true, the estimation in which our profession and the veterinarians are held by those of other callings *depends upon us*.

So that it has been my effort for more than a year to get our association allied with the Academy of Medicine. As president, I did not feel that we wanted to have our identity as a veterinary association and not get any credit for our efforts made as veterinarians. So with Dr. Shafter, B. A. I., Dr. Howard and Dr. Perkins, of the Academy, we took up the matter. I already had taken up the matter of getting quarters at the Cleveland Medical Library Association for a meeting place to get in touch, but found it was not going to be what was planned. So with the help of the men spoken of, we took up the membership to the Academy of Medicine. We found we could become associate members because their by-laws govern and make possible for individuals working in sciences allied to medicine or interested in a topic germane to the work of the Academy, the Academy being made up of sections by the application of members. So that after or in connection with our membership we ask to be known as the Cleveland veterinary section of the Academy of Medicine. The Cleveland Medical Library have a fine building with a nice auditorium built for the use of the Academy at a low rental value. This we have the use of as members, or a smaller room as we may select. We hope to get some of our good men to come to us and give a paper or lecture when we can have the medical profession present, Academy members rather. And so we hope to cultivate fraternal feeling among the members and make for the advancement of veterinary medical science in the city, county, state and nation from this quarter. Furthermore, I believe this the first instance in the United States of the affiliation of the veterinarians in this way with the medical profession, and I am proud of the fact.

Respectfully,

A. S. COOLEY.

REACTIONS TO THE TUBERCULIN TEST.

Tampa, Fla., April 8, 1908.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRS—I have read with much interest the recent reports and discussions of oculo and dermi reactions to tuberculin, as published in the REVIEW. I offer you my mite for what it may be worth. Our law requires all cattle, from which milk is sold in the city of Tampa, to be tuberculin tested. Under the local ordinance, I have personally tested some 3,000 head of dairy cattle during the last two years. My point of inoculation is directly over the scapular muscles and I usually inject late in the evening. The first reading, post-inoculation, being early the following morning. I find that whenever I am going to get a thermic reaction I have a lame cow. Sometimes there is a little swelling at the point of puncture, sometimes none. Lameness seldom lasts more than 24 hours. I should like to know if other practitioners have a similar experience.

FRED W. PORTER, D. V. M.

THE Governor of Michigan has appointed Dr. Geo. W. Hare (Grand Rapids Veterinary College, '98) of Allegan, Mich., a member of the Veterinary Board of Registration of that state.

"I CANNOT afford to be without the REVIEW as no veterinarian can who desires to keep up with the times in his profession."—(B. W. Babcock, Hobart, Oklahoma.)

MARRIAGE OF DR. JOHN A. KIERNAN.—The REVIEW is pleased to announce the marriage of Dr. John Andrew Kiernan, Raleigh, N. C., to Miss Helen Cogan, daughter of Mr. and Mrs. Edmond J. Cogan, which was solemnized at St. John's Church, North Cambridge, Mass., on Tuesday morning, April 28, 1908. Dr. Kiernan was formerly a resident of Jersey City, N. J., and studied veterinary science at the New York College of Veterinary Surgeons from which institution he was graduated, in 1894, with honors. He has been in the service of the Bureau of Animal Industry, U. S. Department of Agriculture, about twelve years, and is now inspector-in-charge at Raleigh, N. C. His many friends in the profession wish Dr. and Mrs. Kiernan long life and much joy.

BIBLIOGRAPHY.

VETERINARY LECTURES (THIRD EDITION). By Prof. Henry Thompson, M. R. C. V. S., Aspatia. 400 pages, illustrated. Chicago, Alex. Eger, 1908.

This is a thoroughly revised edition of an earlier work. Several new plates have been added, showing microscopic sections of the anthrax bacilli and actinomycosis, with photographic blocks of tubercular disease of the spleen and mesentery of the horse, of bots, foetal monstrosities and strangulated intestine. The book is up-to-date in every respect and is admirably adapted for the use of the agricultural student, horse-owner and stock-breeder. It will also be found useful as a ready reference for the young practitioner. The author states it as his opinion that it is the veterinarian's duty to instruct his clients as to the best mode of preventing disease among their stock, and to caution them against the use of advertised patent medicines; urging them, in cases of illness, to call without delay the aid of a qualified veterinary practitioner, when there is any doubt in their mind, as to the nature of the disease.

The work being originally the outcome of lectures, the old titles are still retained in the place of chapters, and, to make it more serviceable for ready reference, the paragraphs are numbered and definitions of each separate malady given. The book again is divided into twelve sections, each section being devoted to one particular portion of the body, in which, first, the general anatomy is briefly reviewed, followed by a description of the symptoms of the various ailments common to the part, and "The First Aid Treatment." The practical side of the work is assured by the fact of the author having been a practitioner for half a century; the scientific and up-to-date side, by his reference to works and publications of various authors. It also denotes his untiring effort to give to his readers all that he possibly could obtain on the subjects in hand. Part I. is devoted to "Instruction," in which the author deals with the essentials of vitality in an original manner, which is followed by sections on Life, Chemistry, Histology, Use of the Microscope, Anatomy, Physiology, Pathology, etc. A fine plate of

a horse, showing "points," is included in this section. Part II. deals with the bones, their composition, diseases, etc. Five full page illustrations are included in this section. Part III. takes up myology, including a study of the muscles and tendons in regard to their structure, injuries and diseases, lameness, etc. Three plates illustrate the muscles, and positions of animals in various forms of lameness. The anatomy of the foot, diseases, and methods of shoeing for different types of horses and under different conditions are exhaustively dealt with under the head of Lecture IV. The digestive organs of the horse are carefully considered by the author in Part V., with fifteen illustrations showing various parts of the digestive apparatus, pathological conditions, internal parasites and animals suffering from different digestive disorders. This is followed by a discourse on dentition and dental diseases in horses, cattle, sheep, pigs and dogs, generously illustrated. After which the circulatory and lymphatic systems, their diseases and disorders, the respiratory organs, nervous system, the skin and urinary system, are taken up in the order named, and their anatomy, functions and diseases considered, with a full set of illustrations for each. Three appendices are next added as follows:

Appendix A—Symptoms of Diseases: Their Recognition and First Aid Treatment.

Appendix B—Medicines: Their Terms, Actions, Formulæ and Doses.

Appendix C—Various forms of Manual Aid.

The appendices will be found particularly useful to animal owners. There are also included some practical suggestions which may prove helpful to veterinarians whose opportunity for studying the habits and requirements of animals in a general sense have been limited. The book is a valuable addition to the veterinarian's library.

A BRIGHT BOY.—A little boy had a colt and a dog, and his generosity was often tried by visitors asking him—just to see what he would say—to give him one or both of his pets. One day he told a gentleman present he might have his colt—reserving the dog, much to the surprise of his mother, who asked: "Why, Jacky, why didn't you give him the dog?" "Say nothin', say nothin', mother; when he goes to get the colt, I'll set the dog on him."

OBITUARY.

ALBERT T. SELLERS, D. V. S.

Dr. Albert T. Sellers, Camden, N. J., died April 3, 1908, of septic poisoning following injuries received in alighting from a trolley car.

Dr. Sellers graduated from the American Veterinary College, New York, in 1887 with the degree of D. V. S., since which time he has practiced his profession in Camden. He was elected second vice-president of the Veterinary Medical Association of New Jersey at the recent annual meeting held in Trenton, January 9, 1908. He was also, at the time of his death, Veterinary Inspector of the Board of Health of the City of Camden. Dr. Sellers took a deep interest in his Board of Health work as well as being successful as a practitioner.

President Hopper named Drs. Rogers, Mecray and Magill a committee to procure a suitable floral offering and to attend the funeral as representatives of the State Association.

WILLIAM S. KOOKER, V. S.

Dr. William S. Kooker, of Philadelphia, died suddenly April 4, 1908, in his 68th year. He was born in Bucks County, Pennsylvania, and attended Dadd's Veterinary School in Boston. He practiced ten years in Easton and thirty-one years in Philadelphia. He was a member of the American Veterinary Medical Association, Pennsylvania State Veterinary Medical Association and the Keystone Veterinary Medical Association.

Dr. Kooker was a loyal and devoted veterinarian, an earnest student at all times, and a faithful member to association duties. In the early history of veterinary legislation in Pennsylvania he took a very active part and did much to help the movement. He leaves a wife and one daughter. Beautiful floral offerings from each of his veterinary associations and from individual members of the profession were sent to his funeral, which was largely attended by his colleagues.

JAMES BUCKHAM, V. S.

James Buckham, V. S. (Ontario Veterinary College, '89), Beaver Falls, Pa., died February 1, 1908, in the hospital at that place.

Dr. Buckham had practiced at Beaver Falls since his graduation. He enjoyed a large practice and was held in high esteem as a citizen. His former home was at Branton, Ontario.

COLLEGE COMMENCEMENTS.

CHICAGO VETERINARY COLLEGE.

The twenty-fifth annual commencement exercises of the Chicago Veterinary College were held on Monday evening, March 30, 1908, in the large auditorium of the Y. M. C. A., 153 La Salle street, Chicago, Ill. There was a large and appreciative audience present. After a musical selection and invocation by the Rev. Z. B. Phillips, Dr. Joseph Hughes, President, delivered his annual address, in the course of which he reviewed the work done by the class during the session just ended.

Dr. A. H. Baker, Dean of the Faculty, then conferred the degree of Doctor of Comparative Medicine (M.D.C.) on the different members of the class, whose names are hereto appended, after which the distribution of diplomas took place.

Dr. L. A. Merillat distributed the gold medals and prizes to the following:

Gold medal for the highest general average in all subjects in final examinations—Dr. C. H. Rosenstiel.

Gold medal for the best final examination in cattle practice—Dr. J. M. Vernon.

Gold medal for the best final examination in Theory and Practice—Dr. Frank Collins.

Gold medal for the best final examination in anatomy—Dr. Ernest Schneider.

Gold medal for the best final examination in surgery—Dr. C. H. Rosenstiel.

The following prizes were also distributed: Pathology and bacteriology, Dr. Chas. T. Bertrand; materia medica, Dr. T. C. Paulsen; physiology, Dr. John J. Lintner; canine practice, Dr. Jas. R. Fesler; meat and milk inspection, Dr. W. R. Richards; parasitology, Dr. A. T. Fletcher.

The following is a list of those who passed with honors: Leslie Howard Bleecker, Frank Collins, Walter Leon Curtis, Arthur Augustus Crosland, Herbert Thomas Cook, Edward Jackson Cole, Arthur Taylor Fletcher, Edward Bonfoy Giller, John J. Lintner, Harold Matson Lewis, Archie R. Lundell, Daniel Edward Murphy, Norman Jay Miller, John Franklin

Myers, Florenz Christian Meckstroth, William Worth Meader, Thomas Christian Paulsen, Charles Hewitt Rosenstiel, Ernest Schneider, Louis Jacob Storz, John Marion Vernon.

The following is the list of graduates: Claude L. Ashbrook, James Martin Beamer, Grover Jacob Behrens, Charles T. Bertrand, Leslie Howard Bleecker, John George Blum, Chester Arthur Boesewetter, Herbert Austen Brown, Edwin H. Buie, Roy Charles Calkins, George William Chapman, Edward Jackson Cole, Francis Cole, Frank Collins, Herbert Thomas Cook, Albert Roscoe Cowser, James Chester Cowser, Chester Cox, Arthur Augustus Crosland, Walter Leon Curtis, LeRoy Mosher Davis, Robert John Digman, James Peter Doherty, James Abraham Dragoo, Arthur Alfred Eastman, Glenn Leyda Ebright, William Henry Emig, Arthur Edward Henry Fabian, Albert Gurney Feers, James Raymond Fesler, Francis Joseph Flanagan, Arthur Taylor Fletcher, George Luckey Frese, Claude Eugene Fuller, Edward Bonfoy Giller, Alonzo Goode, Clyde Marshal Gourley, Harlan Milton Griffin, Marion Jay Hammond, Everts Fenelon Jarrel, Alfred H. Joehnk, Lewis Purdy Keyes, John Kilgore, Theodore Frederick Kimball, Timothy James King, Edward David Leach, David B. Levan, Harold Matson Lewis, John J. Lintner, John William Lockwood, Archie R. Lundell, Chelsie Spurgeon McCleish, Leo Edwin McDonell, Harry L. McEwan, Carlyle Chattan McIntyre, Fay Irving Maxon, Nelson J. Mayer, William Worth Meader, Florenz Christian Meckstroth, John Merriman, Frederick August Miller, Norman Jay Miller, Francis James Moreton, Daniel Edward Murphy, John Franklin Myers, Carl Oscar Nelson, Lynn Daniel Northrop, Frank Milton Norton, George Lester O'Donnell, Fred. Charles Patzer, Thomas Christian Paulsen, Charles Frederick Picking, Burdette David Radcliff, Frederick Bryan Remer, Bernard William F. Repmann, William Roger Richards, Charles Hewitt Rosenstiel, Fred Rowland, Albert Sanders, Jr., Charles Walton Sauer, Ernest Schneider, James Tainter Seely, Orval Cogswell Selby, Oscar Nelson Smith, Clifford Jerry Sparks, Willis Abner Spenny, Joseph E. Stiles, Jr., Louis Jacob Storz, William R. Swan, Frank Carson Swaney, Henry Ericson Torgersen, Godfrey Francis Tottman, Johnce David Townsend, Feodorovitch Assanaski Tsalekoff, John Marion Vernon, Robert Glass Walker, Jr., Harry Jay Waller, Frederick Daniel Weber, John Henry Weber, Harry Sylvanus Weeks, William

Arthur Weldon, George William White, Edwin Tompkins Whitlow, Ralph Wilkinson, John Harrison Wolaver, Paul Orrin Woods.

The presentation of the class picture was made by Dr. H. S. Weeks, and the response on behalf of the Faculty by Dr. E. L. Quitman.

Dr. N. J. Miller ably filled the role of Class Historian, whilst that of Class Prophet was creditably upheld by Dr. Geo. W. White.

The doctorate address was delivered by the Rev. Z. B. Phillips.

The proceedings throughout were interspersed with musical and vocal selections, in which the following participated: Mrs. E. F. Jarrell, Miss Selma Frosberg, Miss Jewel Taylor and Mrs. Josephine Jane.

KANSAS CITY VETERINARY COLLEGE.

The commencement exercises of the Kansas City Veterinary College were held at the New Casino, 1035 Broadway, Kansas City, Mo., on Thursday evening, March 26, 1908. The college has completed the most successful year in its history as was announced in the last issue of the REVIEW.

The degree of D. V. S. was conferred upon one hundred and eleven gentlemen, two of whom were post-graduates, as follows: Robert H. Apitz, Robert Neal Ashley, William R. Atkins, Marion T. Bailey, Bennie J. Baker, John S. Barbee, Ph. G.; J. Alex. Barger, Jerry L. Becker, Anson W. Biggs, John C. Boyd, Marvin L. Boyd, Thomas H. Brady, I. Huston Britt, A. Arthur Brown, C. Ellsworth Burkholder, Paul H. Burnett, Joe H. Bux, Benjamin F. Carper, Clifton Carter, A.B.; Joseph E. Carter, William A. Clemens, Alva G. Collins, Leonard Collins, Michael F. Cunningham, Charles A. Curtis, Hugh E. Curry, Walter A. Davidson, D.V.S.; C. Henry Dechert, Bennie G. Dill, Robert B. Doty, Whig F. Dunaway, Will C. Dye, Guy Edgecomb, Charles M. Elliott, Joseph Emonts, Christian C. Ettling, Ernest T. Faulder, Robert C. Foulk, Carl E. Freeman, Harry D. Freeman, Charles Gomel, John L. Gross, Milton A. Harris, Elmer F. Haven, A. B.; Joseph L. Hearn, Arthur Hilgardner, Justin B. Holbrook, Chester A. Hough, David C. Houser, Pink H. Howard, T. Barnett Huff, E. Ernest Hufft,

Ray B. Hurd, Orion B. Huston, John Hutchison, Eugene H. Hyland, Thomas D. Jackson, Lawrence J. Jennings, Otto E. Jung, George F. Jungermann, Warren C. Kailer, Eilert H. Kartrude, Martin J. Kelley, Walter A. Korb, W. Frank Kramer, Walker M. Lee, Albro A. Lemery, Claude L. Lester, Emilio L. Luaces, Michael W. McGuire, Benjamin Meinershagen, Earl J. Meixel, George W. Mellenbruch, Seibert H. Moore, John F. Myers, Charles A. Nelson, Robert R. Newman, E. Guy Newton, W. Emil Norden, Henry V. Nothomb, Orrin E. G. Olmsted, John W. Ornduff, William F. Osborn, Jr., Cowles C. Parker, Elmer B. Parker, William Pendergrass, Pete Phillipson, James F. Pickett, Henry E. Pine, Leslie G. Pottle, Walter I. Randall, Francis E. Rathbun, Newton V. Reichnecker, John W. Riley, Philip Ritter, Samuel E. Rose, B. Harry Sayre, John R. Seipel, Lee C. Smith, David S. Smithhiser, Henry J. Truemper, Charles I. Walch, Clyde R. Walter, Robert E. Warren, Elmer T. Watkins, Sidney A. Watters, William B. Welch, D.V.M.; Howard C. Wilson, Charles H. Wright, Samuel J. Yancey, Herman E. Zimmerman.

GRAND RAPIDS VETERINARY COLLEGE.

The eleventh annual commencement exercises of the Grand Rapids Veterinary College, Grand Rapids, Mich., were held the evening of March 26, 1908, in the college auditorium, which was very tastefully decorated with many beautiful plants and flowers. A large audience enjoyed the program.

The invocation and opening address was given by the Rev. George Rowe. Prof. L. H. Chamberlain, a member of the faculty, gave the charge. His address was a heart-to-heart talk to the boys, who are great admirers of the doctor. G. F. Gschwend read the class prophecy. The valedictory address was given by L. L. Crawford.

Dr. L. L. Conkey, president of the college, conferred the degree, doctor of veterinary medicine and surgery, upon the graduates. The class, consisting of fifteen members, is as follows:

A. Beery, Decatur, Ind.; C. C. Brockmeyer, Campbellsford, Wis.; A. Buckmaster, Monroe, Ind.; E. Bussis, Zeeland, Mich.; H. Cornehl, Detroit, Mich.; L. L. Crawford, Hopkins, Mich.; E. H. W. Gale, Quebec, Can.; H. F. Gschwend, Waterville, O.;

W. T. Huffman, Bryan, O.; M. P. Hunt, Seattle, Wash.; L. Meyers, Decatur, Ind.; H. Neinhuis, Holland, Mich.; F. M. Stipe, Elbing, Kansas; B. N. Thomas, Warsaw, Ind.; G. H. Young, Nashville, Mich.

Medals of honor were awarded for the highest standing as shown by the final examinations. A. Buckmaster received a gold medal for the highest standing in all subjects. M. P. Hunt and H. F. Gschwend were tied for second place, each receiving a silver medal. The Armstrong gold medal for highest standing in materia medica was awarded to W. T. Huffman. A silver medal went to R. D. Heller for highest standing for the junior year.

J. C. Buckley, editor of the Horseshoers' Journal of Detroit, was present at the exercises and responded to a request from Dr. Conkey for an address which was listened to with great interest by the audience and graduates.

The closing address was made by Colon C. Lillie, of Coopersville, president of the State Dairy Association.

A banquet was given by Dr. Conkey at the Eagle Hotel to the graduating class and alumni and several of their friends. More than fifty persons enjoyed the excellent supper.

INDIANA VETERINARY COLLEGE.

The sixteenth annual commencement exercises of the Indiana Veterinary College were held April 1, 1908, at the college building, corner Market and Davidson streets, Indianapolis, Ind.

Members of the Faculty, Board of Trustees and speakers occupied seats upon the platform, while the large auditorium of the assembly hall was filled with the many friends of the institution, friends of the members of the graduating class, together with a large representation of the alumni of the college.

Dr. George H. Roberts, president, opened the exercises with an address of welcome. Dr. Fred. A. Mueller gave an address viewing the social and scientific standing of the veterinarian. Dr. W. B. Craig gave the class valuable suggestions in antitoxin serum therapy. Dr. Roberts presented to the thirty graduates their diplomas.

The valedictory address was delivered by Dr. G. N. Wickwire, of Angola, Ind. The class members are:

H. W. Jones, Putnamville, Ind.; B. F. Yount, Indianapolis; B. L. Strohl, Oblong, Ill.; B. C. Ornbaum, Crawfordsville, Ind.; F. S. Streng, Fountaintown, Ind.; G. N. Wickwire, Angola, Ind.; M. . Crawford, Fairfield, Ind.; E. J. Tansey, Monrovia, Ind.; C. G. Swindler, Crawfordsville, Ind.; E. Heiny, Noblesville, Ind.; F. C. Shake, Carlisle, Ind.; G. Bard, Crothersville, Ind.; O. A. Barber, Fairmount, Ind.; C. Lombard, Spencer, Ind.; H. G. White, Russiaville, Ind.; John E. Wilkins, Greenville, Tex.; C. O. Byerley, Marshall, Ind.; L. A. Greiner, Jr., Indianapolis; G. C. Sallust, Bainbridge, Ind.; A. Clark, Morristown, Ind.; L. H. Allen, Stockwell, Ind.; M. T. Plummer, Friendswood, Ind.; P. A. Bonebrake, Cutler, Ind.; B. O. Sherrill, Indianapolis; H. C. Harthill, Louisville, Ky.; W. F. Latshaw, Scottsburg, Ind.; P. F. Begeman, Sandborn, Ind.; W. M. Cruse, Wheeling, W. Va.; W. S. Fowler, Waynetown, Ind.; W. U. Gordon, Arcadia, Ind.

ONTARIO VETERINARY COLLEGE.

The 47th annual commencement exercises of the Ontario Veterinary College, Toronto, Canada, took place April 4, 1908, under the presidency of the Principal, Dr. Andrew Smith, F. R. C. V. S. Associated with him on the platform were President Falconer, Mayor Oliver, E. B. Osler, M.P., Professor Baker, Lieut.-Col. Robertson, Lieut.-Col. Lloyd of Newmarket, and Drs. Cowan, King, Smith, Sweetapple, Duncan and Lambie.

The class was the largest the college has ever known, numbering close upon two hundred.

President Falconer, in his address, referred to the proposition to increase the graduating course from two to three years, and said this was made necessary by the constant development in science.

Addresses were given by Mr. E. B. Osler, M.P., Mayor Oliver, Drs. Cowan, Lambie and Sweetapple, Lieutenant-Colones Robertson and Lloyd, of Newmarket.

Mr. A. E. Cameron, senior prize-winner and gold medalist, presented the usual large group picture of the graduating class to the principal.

Dr. Andrew Smith, in acknowledging the presentation, spoke of certain proposed changes in the conducting of the college.

He trusted that the Provincial Department of Agriculture would take it over and carry it on as a component part of Toronto University. Then the college would be on a basis that would insure its existence for all time.

McKILLIP VETERINARY COLLEGE.

The twelfth annual commencement of the McKillip Veterinary College was held at Handel Hall, Randolph street and Wabash avenue, Chicago, Ill., on Thursday evening, March 26, 1908. The program consisted of the usual salutatory, class history, class poem, class prophesy and valedictory, interspersed with vocal and instrumental music. The principal address of the evening was delivered by Dr. Wm. A. Evans, Commissioner of Health of Chicago. President M. H. McKillip conferred the degree of Doctor of Veterinary Medicine upon 122 gentlemen. This is the largest class that has ever graduated from the college.

The gold medal, given for the highest general average for the full three years' work, was awarded to Dr. R. W. Culbert, Chicago, Ill. The silver medal, given for the highest general average for the senior year, was awarded to Dr. J. P. Foster, Huron, S. D. Dr. Foster also received the special prizes in bacteriology and meat inspection.

ST. JOSEPH VETERINARY COLLEGE.

The commencement exercises of the St. Joseph Veterinary College were held in the Y. M. C. A. Building Auditorium, St. Joseph, Mo., March 13, 1908.

The exercises were of an interesting and entertaining character, consisting of music and speeches, after which diplomas were awarded to the following gentlemen: Samuel P. Ojers, Otto Augsperger, Frank W. Miller, Albert Bierent, Frank M. Cahill, Lester G. Reeves, James A. Zimmerman, James E. Shelton, George E. Maxwell, Roy D. Morgan, Clarence S. Foster, Frederick C. Sicrist.

SOCIETY MEETINGS.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

This association convened for its twenty-fifth annual session in the Laboratory Building of the Veterinary Department of the Ohio State University, on Tuesday, January 14, 1908. The meeting was called to order at 1.45 P. M. by the President, Dr. C. B. Frederick, with a greater number of veterinarians present than ever met together at any of our previous annual gatherings.

Dr. Frederick introduced Dr. W. O. Thompson, President of the Ohio State University, who gave us a most hearty welcome. In the course of his remarks, he called our attention to much-needed improvements required by the Veterinary College of the University, and asked the association's support with the members of the legislature in trying to obtain an appropriation for the purpose. They need badly a new hospital building and clinic department.

The address of welcome was responded to, in behalf of the association, by Dr. W. A. Axby, who, in a few well-chosen impromptu remarks, cordially thanked Dr. Thompson, and said as far as he was personally concerned he should be only too glad to be of what assistance he could to the university, and thought others felt as he did.

Just here it was stated that some one had objected to the senior veterinary students being present at the sessions. The secretary explained that at a previous annual meeting, held at this same place, some thoughtless students made fun of the remarks of some of our older members; and it hurt these members' feelings; and last year the meeting was held down town. He thought it unjust to keep the students out on account of the short-comings of some one probably not now in college. Still, on calling Dr. White's attention to the matter, the students are not present and it is up to the association.

Moved, duly seconded, voted upon, and declared carried, that the students be allowed the privilege of our meetings, except when in executive session.

The minutes of the previous meeting were read and approved. President Frederick rendered the customary annual address.

The Committee on Veterinary Progress rendered their annual report through its chairman, Dr. S. D. Myers.

The Committee on Veterinary Diseases rendered no report as the chairman was not present, and the other members had forwarded their parts to the chairman.

The Committee on Clinics and Arrangements reported a large amount of clinical material on hand; that the clinics would be held in the new judging pavilion, commencing at 8.30 in the morning; that the building was heated; and that there would be a banquet at the Hotel Northern at 7.30 to-night; a good, practical banquet, entirely informal, and at a price that no single member ought to be kept away, \$1.50 per plate.

The Secretary read a report giving account of work done, and calling attention to several matters of interest to the association.

The Treasurer reported a balance on hand at the commencement of this twenty-fifth association year of \$345.80, \$140.80 in general fund and \$205.00 in special fund for prosecuting purposes.

Next followed the nomination and election of officers, which resulted as follows: President, Harry Fulstow, Norwalk, Ohio; Vice-President, Wm. H. Gribble, Washington C. H., Ohio; Secretary, S. D. Myers, Wilmington, Ohio; Treasurer, T. B. Hillock, Columbus, Ohio; Censor, O. V. Brumley, Columbus, Ohio. The censors are now Drs. Fair, Cliffe, Brumley.

The Secretary read the names and addresses of twenty-eight applicants for membership and one for re-instatement; same was referred to the Board of Censors.

Dr. J. V. Newton related his experience with rabies, and Dr. J. F. Planz read a short paper on the Pasteur treatment of dogs having rabies. Both were discussed as one. Discussion brought out the facts that the Pasteur treatment is a success with Dr. Planz, as they recover; that the material furnished by the Pasteur Institute costs \$15 per dog. The discussion ran into rabies of hogs, sheep, etc., and it is very evident from the varied remarks and symptoms noticed that the disease, rabies, produces a multiplicity of peculiar and different symptoms; or else several different diseases are mistaken and classed as this one disease.

Dr. J. F. Planz read a short paper on "Eczema of the Dog." This short paper needs no comment, as the treatment explained is so satisfactory.

Dr. Fulstow described the operations and his success in ovariectomies of the large domestic animals; also stating that the clinic committee had provided one or two patients for him to operate on to-morrow.

Dr. H. E. Myers reported a case of malignant œdema; glands suspected.

Dr. J. H. Blattenburg gave a very interesting description of a case of paralysis of larynx which came under his observation and which he had operated upon. He was able to watch this animal for a long time after its recovery and restoration to racing work. The animal afterwards died of acute indigestion. The doctor removed the larynx and brought it with him to this meeting so as to show the actual conditions as they exist in the larynx, after recovery, when the operation had been a success. (If we remember aright the animal did not die until three years after the operation.)

Dr. S. S. Snyder reported his success in the treatment of tetanus with the use of nicotine.

Meeting now adjourned to meet at 8 P. M. at the Hotel Northern.

9.00 P. M.—Met at the banquet table, but some later than time set, as an unavoidable delay occurred. After the eating was over samples of several different medicines were distributed, then the regular business of the association was continued. After the transaction of routine business the reading of papers was resumed.

A paper by Dr. M. J. Jones entitled "What Was the Matter?" was read by Dr. S. D. Myers. On account of the sickness of his wife, Dr. Jones was unable to be present.

Dr. W. A. Axby read a paper, "Modern Therapeutics," in which he called attention to the uses of serums, antitoxins, nuclein, tallialine, etc.

Moved by Dr. Cliffe, seconded by Dr. Clemons, that the Chair appoint a committee of three to draft appropriate designs for a membership certificate and present such designs to the association for its consideration at the next annual meeting. Being put to vote, Chair declared it carried. Later, Drs. W. E. Clemons, W. A. Axby and J. H. Blattenburg were named as committee.

Dr. Gribble called attention to the fact that at our last annual meeting a special assessment of \$5 per member had been levied for prosecuting purposes, and he thought it unjust that

members, non-residents of the state, should be expected to pay this assessment. He therefore offered a motion that non-resident members be exempt from its payment. Seconded by Dr. J. V. Newton. On being put to vote, Chair declared it carried.

Moved by Dr. Gribble, seconded by Dr. Newton:

Whereas, It is claimed and with good reason that the special assessment levied January 22, 1907, for prosecuting purposes is illegal and cannot be collected; therefore,

Resolved, That all members who have paid this \$5 assessment be credited upon the books as having paid so much dues.

As a substitute motion, Dr. Sisson moved, seconded by Dr. Howe, that the officers-elect be and are hereby constituted a committee, with power to act, to disburse this so-called prosecuting fund as in their judgment may seem best.

As an amendment, Dr. S. D. Myers moved and Dr. Carl seconded, that the three veterinarians, members of the State Veterinary Examining Board, be substituted for the officers-elect of this association.

Each in turn being put to vote, the Chair declared the amendment of Dr. Myers lost; the substitute motion of Dr. Sisson carried, and the original motion of Dr. Gribble carried.

We now adjourned to meet at 8.30 A. M. at the Ohio State University.

Clinics began at 8.30 A. M. with an abundance of material and a large number of veterinarians present; in fact, it is doubtful if any association clinic ever held in the United States excelled it.

The Board of Censors reported examining the following applications and recommended that they be elected to membership: S. R. Howard, Hillsboro (Ont.); M. W. Tritschler, Cincinnati (Amer.); E. J. Jenkins, Ravenna (Chicago); A. E. Metzger, Clyde (Chicago); H. Worcester, Middletown (Cincinnati); H. J. Korfhagen, Cincinnati (Cincinnati); W. M. Burson, Cincinnati (Cincinnati); O. J. Huth, Cincinnati (Cincinnati); W. W. Renter, Cincinnati (Cincinnati); R. J. Carver, Columbus (Vet. Dept., O. S. U.); W. A. Brown, Columbus (Vet. Dept., O. S. U.); Frank Griffin, Columbus (Vet. Dept., O. S. U.); E. C. Limbaugh, Mt. Vernon (Vet. Dept., O. S. U.); W. D. Worthington, Harrisburg (Vet. Dept., O. S. U.); S. W. Brown, Hamilton (Vet. Dept., O. S. U.); Reuben Hilty, Bluffton (Vet. Dept., O. S. U.); W. H. Everest, Defiance (Ont.); W. H. Bucke, Eaton (Ont.); C. C. Yule, Bellefontaine (Ont.); J. W.

Price, Lancaster (Ont.); W. H. Smith, West Jefferson (Ont.); A. J. Kline, Wauseon (Ont.); G. L. Schneider, Canton (Ont.); W. H. Foust, Bryan (Ont.); G. U. Marchand, Ulrichsville (Ont.); Jos. H. Jefferson, Chicago Junction (Ont.); H. B. Turney, Marysville (Ont.); E. W. Miller, Rockford (Ont.); D. S. Snow, Athens (Ont.).

Moved by Dr. Sheets, seconded by Dr. Hess, that as no objection is offered to any candidate the rules be suspended and the secretary instructed to cast the ballot for their election. Chair declared it carried and secretary polled 60 votes.

Columbus, Ohio, January 15, 1908.

We, your committee appointed to audit the books of the secretary and treasurer, beg leave to report as follows: Balance on hand last report, \$225; receipts of the twenty-fourth association year, \$313; expenditure of the twenty-fourth association year, \$192.20; leaving a balance on hand January 24, 1907, of \$345.80, of which \$140.80 is in the general fund and \$205 in the special prosecuting fund. Respectfully submitted,

F. E. ANDERSON,

NORTON DOCK,

Committee.

Dr. T. B. Cotton made a short address, describing an operation on geldings of cutting loose the adhered spermatic cord.

Offered by Dr. Sheets, seconded by Dr. Hess:

Resolved, That the Ohio State Veterinary Medical Association approve of the request of the Trustees of the Ohio State University that the present legislature make adequate provision so as to provide necessary facilities for instruction in the practical branches of veterinary medicine and surgery at the Veterinary Department of the Ohio State University.

Chair declared the resolution adopted, and requested each member to write or see his member of the legislature on the subject.

Dr. Cliffe read the report of the Committee on Legislation, which consisted in the main of a proposed amendment to our present veterinary law.

Moved by Dr. Newton, seconded by Dr. Hillock, that the report be accepted and referred to the Committee on Legislation, with power to act. Chair declared the motion adopted.

Moved by Dr. Clemons, seconded by Dr. Turner, that the Committee on Clinics be requested to keep records of the cases operated upon and report at the next annual meeting. Carried. Committee is Drs. Udall, Carl and Brumley.

Moved by Dr. Cliffe, seconded by Dr. Clemons, that the Clinic Committee send a bill of their expenses to the Secretary and that the Secretary be authorized to draw an order on the Treasurer for its payment. Carried.

Moved by Dr. Cliffe, seconded by Dr. Planz, that Dr. D. S. White be selected as a delegate from this association to the Tuberculosis Congress to be held in Washington. Carried.

Moved by Dr. Kinsey, seconded by Dr. Fulstow, that an appropriation of \$100 be made as a fund for Dr. White to draw upon to assist in defraying his expenses in attending the above Congress. Carried.

There being no further business, President-elect Fulstow took the chair and named the following committees, after which the association adjourned:

Committee on Veterinary Progress—F. F. Sheets, J. F. Planz, R. J. Michener.

Committee on Veterinary Diseases—E. O. Hess, W. A. Axby, J. E. Foster.

Committee on Clinics and Arrangements—D. H. Udall, L. W. Carl, O. V. Brumley, N. W. Hillock, H. W. Brown.

Committee on Legislation—D. S. White, W. Shaw, H. W. Brown, F. F. Sheets, G. W. Cliffe.

Auditing Committee—W. E. Clemons, T. E. Jones, H. M. Manley.

Receipts for the year—Dues, \$108; membership fees, \$145; prosecuting fund, \$160; total receipts, \$413; total expenses, \$88.05; balance on hand at close of meeting; general fund, \$305.75; prosecuting fund, \$365.

The Secretary took a count of members a few times with the following result: At no one time was there more than 62 members present; 69 members were present some time during the meeting; 73 persons sat down to the banquet, 24 of whom were not members; so of the 69 members at the sessions only 49 sat at the banquet; the other 20, or nearly one-third, took no part in all the business that was transacted after the eating, the business that is the most vital part in the success or failure of any organization.

It is too bad that another day or part of a day could not have been given to the meeting, as on the second day business and clinics were being conducted in the same room at the same time, and you can imagine that by far too small a number of the members were interested in the business part. More than that, those of us who could not help ourselves lost all the benefit of the clinic, the officers and Board of Censors practically seeing none at all, and the Secretary has no notes or knowledge of one single operation that was performed. Besides, in the rush for clinics, the literary programme was neglected, some of the papers entirely forgotten and not even read by title. This is to be regretted, because one of our greatest troubles in the past has been to get a sufficient number of the members to take part in the literary programme; and now when having been coaxed or cajoled into going to the trouble of preparing something and being on hand to read and defend his views, and then, the time taken up with other matters so that they were not even called upon, we fear will react against future meetings.

From what we saw and heard, the clinic was certainly a grand success from start to finish, from the committee that arranged for the subjects, to Dr. Myers who directed the work of providing an operator always ready for the operation. The consensus of opinion on adjournment was: "It will take work if, in the future, you excel or even equal the meeting of 1908."

WM. H. GRIBBLE, *Secretary*.

REPORT OF THE OHIO STATE VETERINARY ASSOCIATION'S CLINIC.

The clinic was held in the new stock judging pavilion at the Ohio State University on Wednesday, January 15, 1908, beginning at 8.30 A. M. and continuing without intermission until after 3 P. M.

The clinic was the best ever held in Ohio, and was pronounced by a number of veterinarians, who were in a position to know, to be one of the best clinics ever conducted in this country. The success of the clinic was due, largely, to the fact that there was harmony and every man connected with the clinic worked.

The only defect to mar the success of the occasion was the lack of heat in the building, the permanent heating apparatus not being in position. An attempt at heating had been made by means of gas stoves, but these were not sufficient.

Arrangements had been made to have the spectators occupy the raised seats on one side of the tanbark-covered arena, but, after a trial, this was discarded on account of the temperature of the building and the spectators were allowed to move about at will, and enough operations were kept in progress at one time to allow all to see without crowding.

All the operations were carried out under strict antiseptic precautions. In most instances the patients had been previously prepared for operation, the field having been shaved and disinfected by the local committee.

An ample supply of instruments, dressings, anæsthetics, apparatus for sterilizing instruments and for heating water, clean white suits, throwing harness of all sorts, etc., had been supplied.

The subjects with possibly two exceptions (the cows) were all true patients, no anatomy subjects being used.

As far as possible a record of the cases will be kept and a further report will be made at a later date.

The following brief account of the demonstrations is offered without any effort at detailed description:

1. Cartilaginous quitor, Bayer method. Animal cast on bed of straw. General anæsthesia. Surgeon, W. A. Axby, Harrison; assistant, J. F. Planz, Akron.

2. Melanoma, anterior pectoral region in contact with right jugular. Animal cast on bed of straw. General anæsthesia. Surgeon, W. A. Axby; assistant, J. F. Planz.

3. Granuloma, outside of hock. Animal cast. Local anæsthesia. Granuloma removed with scissors and cauterized deeply with actual cautery. Surgeon, J. F. Planz, Akron; assistant, W. A. Axby, Harrison.

4. Spaying cat. Median line. Surgeon, F. E. Anderson, Findlay; assistant, W. B. Washburn, Tiffin.

5. Spaying bitch. Median line. Surgeon, F. E. Anderson; assistant, W. B. Washburn.

6. Tumor. Mammary gland. Bitch. Surgeon, W. B. Washburn, Tiffin; assistant, F. E. Anderson, Findlay.

7. Fistula, withers, carious spines, pus posterior to scapula. Animal cast. Parts well opened up. Spines curetted. Drainage beneath the rhomboideus muscle. Surgeon, J. L. Axby, Lawrenceburg, Ind.; assistant, F. E. Anderson, Findlay.

8. Splint. Firing. Animal standing. Local anæsthesia. Surgeon, W. E. Clemons, Granville.

9. Ring-bone. Mule, left hind. Animal cast. Puncture fired with thermo cautery. Surgeon, W. E. Clemons, Granville.

10. Roarer. Williams operation. Animal cast. General anæsthesia. Surgeon, J. H. Blattenburg, Lima; assistants, H. Fulstow, Norwalk, and W. B. Washburn, Tiffin.

11. Knuckling. Tenotomy. Animal cast. Local anæsthesia. Surgeon, J. H. Blattenburg, Lima; assistant, H. Fulstow, Norwalk.

12. Navicular arthritis. Double neurectomy. Animal standing. Local anæsthetic. Surgeon, W. E. Clemons, Granville.

13. Stringhalt. Tenotomy. Animal standing. Local anæsthesia. Surgeon, W. E. Clemons, Granville.

14. Fistulous withers, carious spines. Animal cast. Surgeon, J. H. Blattenburg, Lima; assistant, F. E. Anderson, Findlay.

15. Spaying cow. Flank. Animal standing. Surgeon, H. Fulstow, Norwalk; assistants, J. E. Thomas, Columbus; W. C. Holden, Delphos; F. E. Anderson, Findlay.

16. Spaying cow. Vagina. Animal standing. Surgeon, H. Fulstow, Norwalk; assistants, J. E. Thomas, Columbus; W. C. Holden, Delphos; F. E. Anderson, Findlay.

17. Tumor. Horse. External metatarsal region. Animal cast. Surgeon, E. H. Callender, Zanesville.

18. Long molars. Horse. Projecting teeth cut off. Surgeon, E. H. Callender, Zanesville.

19. Empyema. Trephining superior maxillary sinus. Animal standing. Surgeon, J. H. Blattenburg, Lima; assistant, F. E. Anderson, Findlay.

20. Stringhalt. Tenotomy. Animal cast. Surgeon, J. E. Thomas, Columbus.

21. Tumor. Horse. Sheath. Animal cast. Surgeon, W. C. Holden, Delphos.

22. Eye examination. Horse. Keratitis, bilateral. Cataract, unilateral. Surgeon, W. R. Howe, Dayton.

23. Lameness examination. Horse. Diagnosis, Sesamoiditis. Surgeons, J. D. Fair, Berlin; J. V. Newton, Toledo.

24. Eye examination. Horse. Diagnosis, acute bilateral phlegmonous conjunctivitis. Surgeon, D. H. Udall, Columbus.

25. Nymphomania. Mare. (For exhibition only.)

D. H. UDALL, Columbus;

H. W. BROWN, "

N. W. HILLOCK, "

C. E. LEIST, "

L. W. CARL, "

S. D. MYERS, Wilmington,

Clinic Committee.

THE MISSOURI VALLEY VETERINARY ASSOCIATION.

The semi-annual meeting of this association was called to order by President Jensen, at 9 a. m., in the new Casino, at Kansas City, Missouri.

The following members registered at the door: Drs. J. S. Anderson, F. S. Beattie, R. F. Bourne, E. Biart, F. F. Brown, G. Butin, L. D. Brown, L. R. Baker, H. Bradley, C. B. Clemens, L. G. Clark, J. W. Connaway, J. C. Carter, R. Ebbitt, W. L. Elliott, H. E. Foster, C. H. Gaines, J. F. Hemphill, W. F. Holbrook, E. F. Jameson, H. Jenson, B. F. Kaupp, A. T. Kinsley, D. O. Knisley, R. C. Moore, G. A. Meixel, E. F. McGraw, J. H. McLevey, W. B. McAlester, A. J. Munn, H. M. McConnell, C. B. McClelland, E. J. Netherton, R. Lovell, J. V. Lacroix, G. F. Puntney, S. A. Peck, C. E. Simpson, C. Saunders, V. Schaefer, J. H. Slater, F. M. Starr, S. Sheldon, L. H. Thurston, A. Trickett, E. A. VanAntwerp, W. B. Welch, W. Warren, R. E. Warren.

The following visiting veterinarians registered at the door: Drs. L. J. Allen, J. H. Barney, F. E. Bishop, E. M. Bates, E. C. Baker, A. Dean, F. E. Freeman, J. H. Gwynn, J. S. Grove, W. J. Guilford, D. A. Haley, H. C. Hanson, W. J. Houser, W. J. Hart, J. I. Jacobson, C. A. Krueger, L. M. Klutz, H. M. Kirk, R. P. Lyman, W. H. McKinney, A. B. Magill, H. Pew, A. N. Reber, E. P. Niles, X. I. Richmond, S. K. Shenk, W. A. Smith, F. L. Wheeler, W. D. Wright, J. D. Thrower.

The following names duly vouched for and favorably passed upon by the board of censors, were added to the membership roll.

Kansas.—E. M. Bates, F. S. Beattie, J. H. Hanna, W. J. Guilfoil, E. F. McGraw, C. E. Simpson, S. L. Stewart.

Dakota.—C. A. Leslie.

Iowa.—G. W. Giess.

The minutes of the previous meeting were read and approved.

It was moved by Dr. J. W. Connaway, that the resignation of Dr. A. D. Knowles, of Livingston, Mont., be accepted and that he be elected an honorary member. Seconded and carried.

Moved, by Dr. S. Stewart, that the president be empowered to revive the bulletin and that the publisher be authorized to accept subscriptions from practitioners and students from reputable schools. Seconded by Dr. W. Warren and carried.

The following resolution presented at a previous meeting was presented for final action:

Resolved, That the constitution and by-laws be changed as follows: The third line of article 2, chapter 4, page 8, reading, "and shall annually thereafter pay one dollar in advance," to read "and shall annually thereafter pay two dollars, in advance," one dollar to go to the publication committee, said member to be entitled to one year's subscription to the Missouri Valley Veterinary Association. Seconded and carried.

Moved by Dr. V. Schaefer, seconded by Dr. J. W. Connaway, that Dr. R. P. Lyman be elected to honorary membership. Carried.

The following resolution was introduced and unanimously carried:

Whereas, Death has removed from our midst Dr. Roscoe R. Bell, and this in the prime of life, and,

Whereas, Dr. Bell labored earnestly, both in season and out of season, and by voice and by pen materially aided in upbuilding and edifying the veterinary profession of our country, therefore be it

Resolved, That the Missouri Valley Veterinary Association record its recognition and appreciation of the great service rendered to veterinary science by our professional brother; and be it further

Resolved, That we firmly believe that the labors of his life will be a continuous stimulus to us as citizens and veterinarians; and be it further,

Resolved, That a copy of these resolutions be sent to the family of the deceased, and a copy to the AMERICAN VETERINARY REVIEW.

The first paper on the program to be presented was "Internal Secretions of Glands," by Dr. R. F. Bourne. The Doctor recited the results of recent investigations in regard to the internal secretion of the thyroid, adrenal, pancreatic and other glands.

"Human Tuberculosis" was ably discussed in a paper by R. W. Holbrook.

Dr. W. F. Holbrook presented the subject of "Bovine Tuberculosis." Dr. H. McConnell gave a short talk on what is being done to eradicate tuberculosis.

Dr. J. C. Carter presented a paper on "Shoeing and Balancing."

Dr. W. B. Welch presented a paper on "Trismus," which was discussed to considerable extent.

At 12 o'clock the meeting adjourned for luncheon. Meeting resumed at 1.30 p. m., with President Jensen in the chair.

The first paper presented was one by Dr. F. F. Brown on "The Pathological Study of the Teeth of Herbivora." The Doctor went fully into the subject, bringing out many new points as to the pathology of diseased teeth, illustrating by means of drawings made from specimens.

This paper was discussed by Drs. Warren, Slater, Nether-ton, Pew, Welch and others.

Dr. R. Ebbitt then gave a talk on the subject of "Hog Cholera."

Dr. W. Warren presented a paper on "The Use of Barium Chloride."

Dr. J. S. Koen presented a paper on "Actinomycosis," which was discussed by Drs. Bourne, Ebbitt and others.

A paper on "Federal Food Product Inspection," was read by Dr. L. R. Baker.

Dr. H. Jensen gave a talk on "The Treatment of Fistulous Withers."

At 6 p. m. the meeting was adjourned. At 7.30 p. m. about fifty veterinarians present attended a banquet served at the Coats House. Dr. L. R. Baker acting as toast master.

Wednesday, February 19, 1908.

The members in attendance met at the Armour Packing Company plant, to examine a display of fresh pathological

specimens and to examine meat products and the method of determining whether or not it is spoiled or wholesome.

The following is a catalogue of the exhibit. Pathological Specimens.

1. Alevolar Sarcoma, from the ox.
2. Lipoma from the region of the shoulder of the ox.
3. A series of Actinomycotic tongue lesions.
4. A series of Actinomycotic head lesions.
5. Tuberculosis post pharyngeal lymph glands.
6. Abscess formation—various tissues.
7. Actinomycosis involving both inferior and superior maxilla.

A series of lesions in the oesophagus of the ox.

8. Papilloma with dilitation of the pharyngeal portion.
9. Larva Hypoderma lineata imbedded in the mucous membrane.
10. Spiroptera scutate imbedded.
11. Large abscess sublumbar region of ox.
12. Carcass of hog showing generalized tuberculosis. Lesions in the lungs, lineal lymph gland, spleen, bones, etc.
13. Carcass showing extensive lesions of hog cholera. Lesions in skin, bone, lymph gland, kidneys, etc.

Bovine lung lesions.

14. Tuberculosis. Lesions in lymph glands and lungs.
15. Purulent Pneumonia.
16. Melanosis.
17. Traumatic Pericarditis
18. Normal lung.
19. Bovine pleura, showing extensive lesions of tuberculosis.
20. Bovine peritoneum, showing extensive lesions of tuberculosis.
21. Bovine uterus, showing lesions of tuberculosis.
22. Bovine Mammary glands, showing lesions of tuberculosis.
23. Bovine diaphragm, showing melanosis.

A series of liver lesions.

24. Tuberculosis.
25. Coccidiosis.
26. Large encapsuled abscess.

27. Cavernous angioma.
28. Hypertrophy.
29. Melanosis.
30. Cirrhosis.
31. Icteric pigmentation.

A series of lesions in lungs of hogs.

32. Tuberculosis.
33. Acute red hepatization.
34. Catarrhal pneumonia.
35. Congestion.
36. Normal.

A series of lesions in the liver of the hog.

37. Tuberculosis.
38. Cirrhosis.
39. Icteric.
40. Atrophy.
41. Abscess.
42. Normal.

A series of lesions in the kidney of hog.

43. Tuberculosis.
44. Cystic.
45. Fatty degeneration.
46. Atrophy.
47. Cirrhosis.
48. Icteric.
49. Melanosis.
50. Congestion.
51. Petechia from hog cholera.

A series of lesions in spleen of hog.

52. Tuberculosis.
53. Round celled sarcoma.
54. Splenitis due to cholera.

A series of pleural lesions of the hog.

55. Tuberculosis.
56. Chronic pleurisy.
57. Adhesions.

A series of skin lesions of hog.

- 58. Diamond disease (urticaria).
- 59. Melanosis.
- 60. Diffuse erythema due to swine plague.
- 61. Diffuse erythema due to extreme cold.
- 62. Dark colored or spotted pigmentation (recovered hog cholera).
- 63. Circumscribed hemorrhagic spots, due to hog cholera.

A series of lesions in the small intestines of the hog.

- 64. Tuberculosis mesenteric lymph glands.
- 65. Mesenteric emphysema.
- 66. Small intestines showing small nodules resembling tubercles, caused by the echinorhynchus gigas, worms attached.
- 67. Small intestines showing mesenteric lymph glands hemorrhagic due to hog cholera.
- 68. Section of small intestine filled with ascaris suolla.

A series of lesions in stomach of hog.

- 69. Acute gastritis.
- 70. Normal stomach.
- 71. Penis affected with tuberculosis.

A series of head lesions of the hog.

- 72. Tuberculosis of post maxillary and sub-maxillary lymph glands.
- 73. Abscess.
- 74. Hemorrhage in glands due to hog cholera.

The foods product exhibit included

Smoked meats.

- 75. Shank of sour ham.
- 76. Puffed ham.
- 77. Sour bacon plate.

Sweet pickled meat.

- 78. Shank of sour ham.

Dry salt meats.

- 79. Shank sour shoulder.
- 80. Rancid back.

Canned meats.

- 81. Good can.
- 82. Slow leaker.
- 83. Sweller.

Lard.

- 84. Sweet.
- 85. Sour.
- 86. Rancid.

Oleo.

- 87. Stearine sweet.
- 88. Oil, sour No. 3.

Sausages.

- 89. Summer sweet.
- 90. Summer sour.
- 91. Pork sweet.
- 92. Pork sour.
- 93. Blood sweet.
- 94. Blood sour.
- 95. Vienna sweet.
- 96. Vienna sour.

At 1.30 p. m. a clinic was held in the clinical amphitheater of the Kansas City Veterinary College.

Subject No. 1.—A demonstration of immunizing calves against tick fever, by Dr. A. T. Kinsley.

Subject No. 2.—Removal of a hematoma from side of the thoracic cavity of a mule. The blood syst weighed 17 pounds. Operator, Dr. V. Schaefer. Dr. R. P. Lyman demonstrated the effects of intraperitoneal injections of chloral hydrate, two ounces was given in ten ounces of water, a trocar, glass funnell and short rubber tube were used. The mule laid down in seven minutes. The effects of the chloral lasted a little over an hour. No ill results followed.

Subject No. 3.—Arytenoidectomy in a bay stallion. Incision through anterior crico-thyrodean ligament. Removal of vocal cord and a portion of the artenoidean cartilage. Operator Dr. J. S. Anderson, assistants Drs. Starr and Holbrook.

Subject No. 4.—Ovariectomy in mare, Dr. R. P. Lyman. Operating in a standing position.

Subject No. 5.—Arytenoidectomy in a gray gelding, mode of operation same as No. 3, operator, Dr. R. C. Moore.

Subject No. 6.—Removal of cataract in a bay mare, operator, Dr. G. F. Puntney.

Adjourned.

B. F. KAUPP, Secretary.

THE VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of this association was held in the offices of the Dominion Department of Agriculture, Portage avenue, Winnipeg, Man., on Tuesday, February 18, 1908, at 2 P. M.

The president, Dr. W. E. Martin, occupied the chair. There were present as visitors Dr. Miller, of St. Joseph, Mo., U. S. A., and Drs. Ross and Walsh, of the Federal Meat Inspection Division.

The secretary read the minutes of the last annual meeting, which on the motion of Dr. C. D. McGilvray, seconded by Dr. S. A. Coxe, were adopted as read.

A communication was read from the secretary of the Board of Trade of the Municipality of Belmont, requesting the association to assist them in locating a practicing veterinarian in the town of Belmont, where the services of one was now much needed, and, on the suggestion of the chairman, it was decided that any of the members hearing of a veterinary surgeon likely to take up the proposition, should communicate with the secretary.

The secretary also read a communication from the Board of University Commissioners, inviting the association to submit their views to the Commission in reference to veterinary education. In bringing this matter before the meeting, the secretary said that this raised a very important point in that it involved the future of veterinary education in Manitoba, and he therefore hoped that the matter would be fully discussed. He was often in receipt of communications from different parts of the West, addressed to the Veterinary College, Winnipeg, and from students inquiring as to where it was best for them to go from the West to acquire veterinary education, and in his opinion there was certainly a demand for veterinary education in the West. At present the students have to go to Ontario and other parts to get this education, and it might be well for us to consider the advisability of asking this University Commission to refer to this question in their report to the government. We have to reply to this communication from the University Commissions, and I think it will be well to give them some evidence as to the value of veterinary education, and the opening that exists here for establishing a veterinary college.

After some further discussion, on the proposition of Dr. Dunbar, seconded by Dr. Little, the following were elected a

committee to go into the matter and reply to the commissioners: The president, the secretary-treasurer, Dr. Torrance, and Drs. C. D. McGilvray, W. J. Hinman, and A. E. Williamson. The following resolution was also passed on the motion of Dr. Torrance, seconded by Dr. Chas. Little:

"That in the opinion of this association the time has arrived when veterinary education should be undertaken in this province, and the Board of University Commissioners should be respectfully requested to recommend to the government the establishment of a Veterinary College in Winnipeg in the near future."

AUDITORS' REPORT.

"This is to certify that we have this day examined and found the books of the Manitoba Veterinary Association correct in every detail."

A. E. WILLIAMSON, V. S.,
CHAS. LITTLE, V. S.

On motion of Messrs. Little and Dunbar, the report was adopted.

SECRETARY-TREASURER AND REGISTRAR'S REPORT.

The first subject usually dealt with in this report is the payment of fees, and I have to thank the majority of the members for the prompt remittance of their dues soon after the annual meeting. There are some, however, who neglect this matter and have to be written to several times before they respond, and some who do not respond at all. It would greatly facilitate the work of the secretary if all would pay up promptly. Several of those in arrears paid up their fees during the year, but others allowed themselves to get behind, so that we still have several delinquents upon the list. These will be dealt with by the Council.

Several prosecutions were undertaken during the past year for infraction of the Veterinary Act, and in every case where an information was laid, the association was successful in obtaining a conviction. The following were convicted and fined:

F. Watkinson, Crystal City, second offence..	\$50 and costs.
J. B. Desmarteau, Morris.....	20 and costs.
Norman West, Swan River.....	30 and costs.
C. B. Gofton, Dauphin.....	25 and costs.

As registrar, I beg to report the following members have removed from the province: D. A. McArthur, J. W. Rutledge, W. Swenerton and H. F. Whaley.

The following new members have registered after passing the necessary examination: S. W. Armitage, Crystal City, McKillip, '07; J. W. Broadfoot, Binscarth, McKillip, '07; B. A. Brown, Swan Lake, Ont., Vet. Coll., '96; A. G. Husband, Dep. of Agl., Winnipeg, McKillip, '07; Manchester W. Wawanesa, McGill, '92; McKenzie W. H. Emerson, McKillip, '07; J. H. Part, Swan River, McKillip, '07; J. A. Swanson, Manitou, McKillip, '07; Sirett W. F. Minnedosa, McKillip, '07; A. F. Wilson, Portage la Prairie, McKillip, '07. The total membership is now 101.

As treasurer, I beg to present the following financial statement:

Receipts	\$504.05
Balance, 1907	471.76
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Total	\$975.81
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Expenditure	\$523.03.
Balance, 1908	452.78
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Total	\$975.81
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F. TORRANCE, *Secretary-Treasurer and Registrar.*

On motion of Drs. Dunbar and Hilton, the report was adopted.

ELECTION OF OFFICERS.

The election of officers resulted in the following:

President, C. D. McGilvray, Winnipeg; vice-president, W. R. Taylor, Portage la Prairie; secretary-treasurer and registrar, F. Torrance, Winnipeg. *Examiners, C. D. McGilvray, W. E. Martin and F. Torrance. Council, S. Robinson, Brandon; J. P. Molloy, Morris; A. E. Williamson, Winnipeg; and the officers mentioned above.

The president expressed the pleasure of the meeting at the presence of the visitors, Dr. Millar, of St. Joseph, Mo., and Federal Meat Inspectors Ross and Walsh, and extended an invitation to them to be present at the dinner in the evening.

EVENING SESSION.

The members began the evening session by dining together in Manitoba Hall. Some twenty-five sat down and this departure from the usual program was found so pleasant a change that the members present hoped it would become an annual feature.

When the eatables were disposed of, the president, Dr. C. D. McGilvray, proposed the health of the King, which was duly honored, and the meeting settled down to business.

Dr. S. Robinson, of Brandon, reported a case of dislocation of the patella in a mare of 1,400 lbs., weight. He got the leg into the usual position for reduction and tried for half an hour to replace the bone without success. He then applied a block of wood to the part and hit it a smash with an axe and the patella went back into place all right, and the mare walked off as if nothing was the matter.

Dr. McLoughry exhibited specimens of thrombosis of the posterior aorta, and related a case of a horse that had received an injury to the hind legs while unloading grain at an elevator. This horse afterwards was sold and died in the hands of the new owner, who was suing for damages on the ground that the horse was unsound from the injuries received and that his death was directly traceable to those injuries.

This proved an interesting subject for debate and an interesting discussion followed.

Dr. Ross, of the Federal Meat Inspection staff, read a paper on "Tuberculosis Affecting Meat." This led to an animated discussion of the conditions of meat and milk inspection in Manitoba, and resulted in the appointment of a committee consisting of Drs. Martin, Shoults and Torrance, to draw up a resolution dealing with this matter.

Dr. McGilvray then read a paper on the "Health of Animals' Branch of the Department of Agriculture," showing the important work that was being done in Canada in controlling diseases of animals and inspecting animal food products.

It was decided by vote to hold the semi-annual meeting in Winnipeg.

The meeting then adjourned.

F. TORRANCE, *Secretary-Treasurer.*

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

This association held its regular quarterly meeting at Hanford, California, on March 11, 1908. In the morning a clinic was held at the Hanford Veterinary Hospital. Some of its features were:

"Spaying of Heifers," Dr. P. H. Browning, of San Jose, and Dr. Otis Longley, of Fresno.

"Castrations" (standing operation and cast), Dr. Frank Griffiths, of Hanford.

"Operation on Cryptorchid," Dr. D. F. Fox, of Sacramento, and Dr. H. A. Spencer, of San Jose.

"Plantar Neurectomy," Dr. J. J. Hogarty, of Oakland.

"Demonstration of Dipping Sheep," Dr. J. H. Hammond, Veterinary Inspector U. S. Dept. of Agriculture.

After lunch, the veterinarians were taken in automobiles for a ride over the country and at 3 o'clock the meeting was called in Dewey Hall. Roll call showed sixteen members present besides five visiting veterinarians. The minutes of the last meeting were read and approved. Dr. Otis Longley, chairman of the Judiciary Committee, reported that there was \$300 in the prosecution fund. He stated that no prosecutions had yet been begun by the committee, but suits had been started privately by members of the association against certain illegal practitioners. A motion was made by Dr. Archibald and seconded by Dr. Creely that every member of the Judiciary Committee who has not attended at least two meetings of the committee be dropped from the committee. After considerable discussion the motion was carried.

The literary features of the programme were: President's address, D. D. Fox, of Sacramento; "Treatment of Impaction of the Horse," Dr. Otis Longley, Fresno; "Opsonic Therapy," Dr. R. A. Archibald, Oakland.

By motion, the expense bill for stenographic work of the secretary was ordered paid. By motion, the president was instructed to appoint a committee of three to draft resolutions regarding the death of Drs. Oliver and Bell. Following are the resolutions:

(1)

"*Whereas*, Since the last meeting of this association our profession has suffered a most incalculable affliction, and this asso-

ciation has been particularly afflicted through the death of one of our most promising members.

"Be it resolved, That in the demise of Dr. W. J. Oliver we feel a loss in our midst that we can least afford.

"Be it further resolved, That while we bow to the will of Him who directeth all things wisely, we mourn the loss of a most estimable member, a progressive veterinarian and a kindly friend.

"Be it resolved, That a copy of these resolutions be sent to the bereaved family and that they be spread upon the minutes of this meeting."

(2)

"Whereas, Relentless Death has again invaded the ranks of our profession, selecting as its victim one of our most valued and beloved members, Dr. Roscoe R. Bell, of Brooklyn, N. Y., and

"Whereas, Through the keen intelligence, admirable foresight and persistent industry of Dr. Bell veterinary journalism has attained its high standard of excellence in America, and

"Whereas, Dr. Bell, in addition to his editorial attributes, was a teacher of the highest order, being capable of absorbing the most intricate details and imparting the same in such a lucid manner as to indelibly impress them upon the hearer's mind, be it

"Resolved by the California State Veterinary Medical Association, That while we bow in humble submission to the will of the Divine Ruler, we can but grieve at the demise of so valued a veterinarian, such a gifted teacher and so loyal a friend, and be it,

"Resolved, That the most heartfelt sympathy of the members of this association are tendered to the bereaved family in this hour of their affliction, and be it

"Resolved, That a copy of these resolutions be transmitted to the family of the deceased, and that these proceedings be spread upon the minutes of this association."

R. A. ARCHIBALD,

D. F. FOX,

H. A. SPENCER,

Committee.

A recess was declared to give time for the drafting of the resolutions and signing of the constitution. After the meeting

was again called to order, a discussion took place with regard to the professional ethics of advertising and with regard to the fact that a certain eastern veterinarian had been making a practice of coming to the state every spring and doing work without applying to the State Board of Veterinary Examiners for a license.

An invitation to hold the next meeting in San Jose was received from Drs. Spencer, Healey and Browning.

President Fox appointed as essayists for the next meeting Drs. Betzold, Healey and Keane. A motion was carried expressing the appreciation and praise of the association to Dr. Frank Griffith, of Hanford, for his magnificent entertainment and hard work in carrying out successfully the plans of the meeting.

In the evening a banquet was held at the Esrey restaurant. Dr. H. A. Spencer, San Jose, acted as toastmaster.

C. M. HARING,
Secretary.

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

This association convened in the city of Lincoln at the State Farm, on Monday and Tuesday, January 20 and 21, 1908. Promptly at 9 A. M. Prof. Wayne Dinsmore, of the Iowa State College, opened the meeting with a stock-judging demonstration, a class of poland china hogs were brought in and Professor Dinsmore gave the veterinarians present a thorough drilling in judging hogs from a market and breeding standpoint. At 10 o'clock a class of fat steers were judged and at 11 o'clock four splendid specimens of percheron draft stallions was brought into the new judging pavilion and over one hour was spent most profitably in considering the points of the horse. Animal husbandry has been neglected in the past by veterinarians in general, but Nebraska veterinarians are determined to all become expert stock judges.

At noon lunch was served at the Farm and promptly at 1.30 the meeting was called to order by Dr. Sprague; the president, Dr. Young, not being present. Minutes of previous meeting were read and approved.

A most excellent paper on "Biers' Congestive Hyperæmia Treatment in Veterinary Practice" was presented by Dr. A. T.

Peters; Dr. Burton Rogers, of Manhattan, Kansas, presented a paper on "Eradication of Tuberculosis"; Dr. Young, of Omaha, presented a paper on "Veterinary Ethics."

Dr. Jensen was elected to represent the Nebraska Veterinary Medical Association at the International Congress on Tuberculosis in Washington, D. C.

At 8 o'clock in the evening an elegant banquet was served at the Windsor Hotel. The following ladies and guests were present: Mesdames Gain, McKim, Jensen, Anderson, Lovell, Paine, Ewell and Beckman. Drs. Dunphy, Stewart and Prof. Dinsmore. Dr. A. T. Peters acted as toastmaster and the following toasts were responded to:

"Our Annual Pilgrimage," Dr. V. Schaefer; "Veterinary Progress," Dr. J. S. Anderson; "The Ladies," Dr. G. R. Young; "Prophecy," Dr. Simonson; "A Message from Iowa," Prof. Wayne Dinsmore, Ames, Iowa; "Early Nebraska Veterinary History," Dr. Richard, Ebbitt; "A Message from Missouri," Dr. S. Stewart, Kansas City; "Our New Members," Dr. I. W. McEachran; "Our Guests," Dr. W. H. Tuck; "A Message from Michigan," Dr. G. W. Dunphy, Detroit.

Music was furnished by Thornburg's Orchestra.

On Tuesday morning the members assembled in room 105, Agricultural Hall, with Dr. Young in the chair, and listened to a paper presented by Dr. Lovell on the subject of "Pernicious Anæmia." This disease is giving us a great deal of trouble in the state and the doctor had evidently given his subject a great deal of thought and study. A lively discussion followed by Drs. Thomson, Ebbitt, Jensen, Dunphy, Schaefer, Peters, Bernard, Drasky, and our always welcome visitor, Dr. S. Stewart, of Kansas City, gave us his experience with this malady, which was greatly appreciated by us all.

Next a paper was presented by Dr. G. W. Dunphy, of Detroit, entitled "New Veterinary Remedies," a great many to us unknown remedies was brought to our attention. All the members present enjoyed this paper, as a great many valuable suggestions were made.

A rising vote of thanks was given Dr. Dunphy for his excellent paper. In the afternoon a clinic was held in the animal house and the following cases were presented. A neoplasm of the fetlock removed by Dr. Anderson. A tumor of the nasal septum removed by Dr. Schaefer. Tibioperoneal neurectomy performed by Drs. Lovell and Anderson. Demonstration of

producing general anaesthesia by intraperitoneal injection of chloral hydrate solution by Dr. Jensen. Chronic gonitis treated by Dr. Schaefer with phenic acid injections. Judge Carey, of Seward, addressed the meeting during the afternoon and informed the members of what was being done towards prosecuting violators of the law.

The following members were present: Drs. Gain, McKim, Anderson, Odell, Carmichael, Bowers, Hall, Lovell, Royce, Thomson, Berg, Smith, Collins, Stewart, Schaefer, Huntley, Drasky, Paine, Wilett, DeCow, Ebbitt, Meixel, Bernard, Strayer, Trabert, Von Nordheim, Simonson, Scott, Carstensen.

It was decided to hold the fall meeting in Grand Island during the month of October.

H. JENSEN, *Secretary*.

NEW YORK UNIVERSITY ALUMNI ASSOCIATION OF THE NEW YORK-AMERICAN VETERINARY COLLEGE.

The annual meeting of the New York University Alumni Association of the New York-American Veterinary College was held in the college building, 141 West Fifty-fourth street, New York City, on April 2, 1908, at 3.30 P. M. The meeting was called to order by the president, Dr. W. C. Miller. There were many alumni in attendance, including the entire graduating class of 1908.

The society passed a unanimous resolution lamenting the death of our beloved brother alumnus, Dr. R. R. Bell, setting aside a page in the minutes in memoriam and directing the secretary to send a copy of the resolutions to the bereaved family.

The officers elected for the ensuing year are as follows:

Dr. T. Earl Budd, president; Dr. J. G. Slee, 1st vice-president; Dr. W. C. Miller, 2d vice-president; Dr. H. F. Harms, treasurer; Dr. T. F. Krey, secretary. Executive Committee, Dr. Wm. Herbert Lowe, chairman; Dr. W. J. Coates, Dr. W. Horace Hoskins, Dr. T. E. Smith.

The meeting adjourned at 5.30 P. M. in order to permit ample time to prepare for the annual banquet, which was held at the Circle Hotel at 7.30 P. M.

The annual banquet was a delightful event, surpassing in many ways previous banquets of the society.

When the inner man had been plentifully supplied from a splendid and well-served menu, our popular toastmaster Dr. Wm. Herbert Lowe introduced the speakers of the evening. Dr. John P. Munn, of the Council of New York University, responded to the toast, "The University," in well-chosen words, and before he had concluded proved to us again the tender spot he has always maintained for the veterinary department. Dr. W. J. Coates, in response to the toast, "The Faculty," brought forth most interesting and humorous rhymes including every member of the faculty. The farther he proceeded with the narration the more humorous it grew and each verse was hailed with much laughter and a good round of applause. It would be difficult to beat Dr. Coates at verse and it is certain his toast will remain "The Faculty" for many years to come.

Dr. W. Horace Hoskins responded to the toast "Future Veterinary Education in America" as only Dr. Hoskins can; his remarks received the greatest attention. Those who did not hear his remarks missed a treat.

Dr. Van Mater kept us in constant merriment with his "Rhymes Mostly Stolen." It is a mystery where Dr. Van Mater gets all his good stories. He is certain of being booked for next year.

Dr. Ellis did full justice to his subject, "Professional Ethics," which was very instructive and entertaining, and was followed by Dr. H. D. Hanson, who responded to the toast, "College Life as a Teacher," which was much appreciated by members of the faculty and enjoyed by all.

Dr. J. L. Thompson, of the Law Department, was up to his usual standard and as usual convinced many of us that the study of law must be robbed of its dryness when Dr. Thompson is the lecturer.

Dr. W. Reid Blair told us many interesting things about the "Zoo" as only Dr. Blair can tell them. We are always glad to listen to him.

Dr. Robertson thought he had escaped making a few remarks by requesting the dinner committee to omit his name from the programme, but no banquet is a complete success without a few remarks from one of our oldest members and he gracefully accommodated us.

Dr. W. C. Miller again proved his claim to the toast "The Ladies." We have him listed for 1909.

Dr. T. E. Smith, although taken unawares, responded to the toast "Societies" in a masterful manner and we are glad we assigned that subject to Dr. Smith; we all benefited by his remarks.

Dr. T. Earle Budd, the president-elect, addressed the graduating class in a way that took many of us back to the days when we needed just such encouragement as only Dr. Budd can give. His remarks should ever be a safeguard and his words of encouragement a source of much pleasure throughout the professional life of the graduates.

Dr. Albert Towners responded in behalf of the graduating class, thanking Dr. Budd for his address and the faculty for the interest manifested to the students throughout the college course.

THEODORE F. KREY, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The April meeting of this association was held in the lecture room of the New York-American Veterinary College, 141 West Fifty-fourth street, New York City, on the evening of April 1, with President Grenside in the chair. There were 40 members and visitors present. After the usual routine business was transacted, Dr. E. B. Ackerman, of Brooklyn, read some very interesting case reports on tetanus, which had been successfully treated with injections of carbolic acid and tr. iodine. After the discussion of this paper had closed, Dr. W. Horace Hoskins, of Philadelphia, was introduced and he presented a very able and practical paper on the subject, "How Are We to Educate the Public as to Needed Legislation for Veterinary Sanitary Control Work?" As there is no one better qualified to speak upon such a subject than Dr. Hoskins, those who were able to be present were fortunate indeed. Dr. Hoskins told of the legislative results achieved in the state of Pennsylvania by the efforts of a united profession standing behind and supporting their leaders. The doctor thought that while the Legislature at Harrisburg had supported their demands in a good measure, still he felt that more should be done, and that he was confident more would be accomplished in the near future, but that it took

persistent and conscientious work in order to convince the law-makers that their demands were just and beneficial and in the interests of the general public. In reply to a question, Dr. Hoskins explained the necessity for the recently established State Meat Inspection Service. He explained that while the Federal inspection controls such meats as may pass into interstate trade, still where there is no strict municipal inspection there can come into the city any amount of questionable meats, in the shape of diseased, spoiled or unclean meat. The unprotected are the people of the smaller cities and towns where meats and meat food supplies are constantly consumed without Federal or any other inspection. It is to just such matters that Dr. Hoskins believed the veterinarian's attention must be directed in order to educate the public to needed legislation.

What has already been accomplished in Pennsylvania the doctor believed could be brought about in New York. He believed that every veterinarian should take a lively interest in everything pertaining to the food supplies and the public health, and each could certainly render valuable assistance in the passage of laws beneficial to the general public as well as the veterinary profession by speaking or writing to their representatives in the legislature in support of such measures.

In the discussion which followed Dr. Hoskins' paper many of the members lamented the fact that the great State of New York should be so far behind her sister states in matters of this kind.

Ex-Judge Amon, who came to the meeting as a guest of one of our members, was invited to address the meeting on the subject of the prosecution of illegal veterinary practitioners. The Judge responded and gave us some valuable information as to the manner of procedure in such cases. He advised the association to retain a lawyer, as one was really necessary for properly presenting the cases.

Dr. Hazle reported progress relative to the cases which are now ready for prosecution.

Judge Amon was given a vote of thanks for his remarks and advice.

A vote of thanks was extended to Dr. Hazle for his efforts in gathering evidence against illegal practitioners.

A hearty vote of thanks was extended to Dr. Hoskins for coming to New York to address us.

Dr. John J. Hays, graduate of the American Veterinary College, 1894, and Dr. F. D. Boulanger, graduate of the New York-American Veterinary College, 1907, were unanimously elected to membership in this association.

The meeting adjourned at 11.20 P. M.

W. REID BLAIR, *Secretary*.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular quarterly meeting of this association was held on the evening of April 8, 1908, at Waterville, Me. John M. Deering, of Saco, and F. S. Adams, of Bowdoin, members of the state board of cattle commissioners, were present. Members of the association present were: W. S. Lord, Portland; F. L. Russell, Orono; F. L. Stevens, Farmington; F. E. Freeman, Rockland; R. E. Freeman, Dexter; C. L. Newton, Dover; C. W. Watson, Brunswick; C. L. Blakeley, Augusta; I. L. Salley, Skowhegan, and A. Joly, of Waterville.

The general subject for discussion was tuberculosis, and the cattle commissioners were present to talk over the situation in Maine, methods used to control the disease and to confer with the members of the association on the work being done. Vice-President Lord presided in the absence of President Murch.

A paper on "Bovo-Vaccine" was read by Dr. C. L. Blakeley, of Augusta, and one on "The Sanitary Condition of the Country Slaughter Houses," by Dr. F. L. Stevens, of Bangor, one of the government inspectors. Dr. Stevens also discussed the necessity of having a state law governing the inspection of meat.

Messrs. Deering and Adams spoke on the general conditions regarding tuberculosis in the state at present and of the work that is being done by the commission. Mr. Adams told of his recent trip to New York to attend the meeting at which nine states were represented and at which an association to be known as the Eastern Live Stock Sanitary Association was formed, explaining the purposes of this organization. At that meeting the best methods of controlling tuberculosis were discussed and the value of the tuberculosis test highly commended.

Dr. A. Joly, secretary of the association, spoke of the tuberculin test as the best method for diagnosing the disease in animals.

The committee reported a resolution recommending that the health authorities of the state take action to improve the condition of dairy products when marketed. The committee also reported resolutions of sympathy on the death of Dr. Roscoe R. Bell, of New York, Editor of the AMERICAN VETERINARY REVIEW.

It was voted to hold the next meeting in Portland in July. After the meeting adjourned, those present were entertained at an informal luncheon at the Elks' Club by Dr. Joly.

April 9th A. M.—A clinic was held at Dr. Joly's Veterinary Hospital. Post-mortem examinations were also made on a number of cows that had re-acted under the tuberculin test. Commissioners Deering and Adams, as well as the members of the association, stayed over and attended the clinic and post-mortem examinations.

A. JOLY, *Secretary*.

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association was held at Hotel Hartford, Hartford, Conn., Tuesday, February 4, 1908. The meeting was called to order by the President, Dr. Kelley, at 12 o'clock, noon. The following members responded to the roll call: Drs. H. E. Bates, F. F. Bushnell, E. M. Beckley, G. T. Crowley, Chas. L. Colton, G. E. Corwin, B. K. Dow, P. F. Finnigan, L. B. Judson, P. T. Keeley, J. H. Kelley, G. W. Loveland, J. S. Schofield, J. E. Underhill, H. Whitney, C. R. Witte and Harry Lukes, of Springfield, Mass.

The minutes of the previous meeting were read and approved. The Secretary's and Treasurer's reports were accepted. At 1 o'clock adjourned for dinner; reconvened at 3 P. M.

Application for membership was made by Dr. E. F. Schofield, of Greenwich, Conn., vouched for by Drs. Bates and Corwin. The application was referred to the Board of Censors.

The election of officers resulted as follows: President, Dr. R. D. Martin, Bridgeport; First Vice-President, Dr. F. F. Bushnell, Middletown; Second Vice-President, Dr. E. M. Beckley, Meriden; Secretary, Dr. B. K. Dow, Willimantic; Treasurer, Dr. H. Whitney, New Haven.

Board of Censors—Dr. Thos. Bland, Chairman, Waterbury; Dr. G. W. Loveland, Torrington; Dr. G. T. Crowley, New Britain; Dr. P. T. Keeley, Waterbury; Dr. L. B. Judson, Winsted.

After the election of officers several important matters pertaining to the affairs of the association were discussed and acted upon.

The new glanders and dog laws were freely discussed, and several members related their experiences with the working of the law.

Dr. H. E. Bates presented a cystic calculus, which he removed from a mare.

Dr. L. B. Judson presented a "concretion," composed of hair, dirt, pieces of string, etc, which he removed from a dog's stomach (post-mortem).

Drs. Kelley and Whitney invited the association to hold its semi-annual meeting in New Haven, at Dr. Kelley's hospital. They promised the members a good clinic and a pleasant time. The invitation was gratefully accepted by vote of the members.

At 5 P. M. voted to adjourn.

B. K. Dow, *Secretary*.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

The following address was delivered before the semi-annual meeting at Reading, Pa., by President D. R. Kohler. (Crowded out of the report of proceedings published in April number.):

FELLOW MEMBERS—I must express my sincere thanks that you have chosen me the presiding officer of this association. I appreciate the honor. This marks the first meeting for the beginning of another year of this association. I hope the coming year may be as prosperous as the year just passed; the veterinary profession has been very prosperous, although perhaps not so financially to all those who are in active practice. I would refer to the advances, scientific researches and the opportunities offered to the veterinary practitioner. If we take a look at what the veterinary business was 25 years ago, and what it is to-day the contrast is great; they had no thermometers to take the animal temperature, no tuberculin to diagnose tuberculosis, no mallein to determine whether a horse had glanders or not, no antitoxines to alleviate

and control some of the most dreadful and fatal diseases. Twenty-five to forty years ago there were only a few so-called "Horse Doctors," and they were kept scratching to pay for their living and the liquor most of them used in those days. Now, to-day, you find a veterinarian in nearly every town of two thousand to three thousand inhabitants, where there is an agricultural district, and most of them are getting along fairly well, and also good opportunities are offered by the federal government for veterinary inspectors, and even our own state offers some fair positions. Of course, we cannot all have these positions, but nevertheless, those who get these positions make more room for those who stay in regular practice; also, the progress, advancement and researches that are going on in our own state gives employment to a number of practitioners and for that part we must give credit to our competent leader, Dr. Pearson. I will leave the rest of the time for the discussion of papers.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting of the above association was held on the evening of March 25, 1908, at 514 Ninth street, N. W., Washington, D. C.

In the absence of the president and secretary, Dr. H. W. Acheson acted as president, and Dr. M. P. Smith as secretary.

The Committee on Diseases, represented by Drs. J. P. Turner and Dornheim, reported an unusually large number of cases of rabies in the District. The subject was discussed at length, and the consensus of opinion was that all dogs should be muzzled for a time at least, and that the practice of muzzling was both humane and practicable. The question of the successful treatment of Azoturia and the use of Adrenalin was also discussed; no member could give a treatment that he considered invariably successful, and there was no information given as to the value of Adrenalin in such cases. The treatment of Tetanus was also discussed, and there seemed to be an unanimous conclusion that Tetanus Antitoxin was valuable as a preventive.

F. M. ASHBAUGH, *Secretary.*

STATE.	Preliminary Education.	Professional Training.	Licensing Tests.	Registry.	Executive Officer and Address.	Administrative Board.	Remarks.
Illinois.	21 years of age. Good moral character.	No requirements.	Exam. diploma from recognized school accepted in lieu of exam.	With the Clerk or Recorder of the county of practice.	H. E. Worth, Secretary, Springfield.	State Board of Live Stock Commissioners.	
Indiana.	No requirements.	Graduation from a reputable school.	Exam. in case diploma is from college not recognized by S. Board.	With the State Board.	O. L. Boor, Secretary, Muncie.	State Board of Veterinary Examiners.	
Iowa.	21 years of age. Good moral character.	Graduation from recognized school.	Examination.	With the Recorder of county of residence.	H. E. Talbot, Secretary, Des Moines.	State Board of Veterinary Medical Examiners.	
Kansas.	.....	.....	.....	.....	.....	D. O. Knisley, Secretary, Topeka.	
Kentucky.	.....	.....	.....	.....	.....	.....
Louisiana.	.....	.....	.....	.....	.....	.....
Maine.	No requirements.	Graduation from a legally chartered school.	Examination.	With Sec. State Board and Clerk Supreme Court of county of examination.	A. Joly, Secretary, Waterville.	State Board of Veterinary Examiners.	
Maryland.	No requirements.	Graduation from incorp. school.	Examination.	With the State Board.	W. H. Martinet, Sec., Baltimore.	Veterinary Medical Board.	
Massachusetts.	21 years of age.	No requirements.	Examination.	With the State Board.	E. W. Babson, Sec., Gloucester.	B'd Registration in Vet. Med.	
Michigan.	No requirements.	Graduation from recognized school.	Exam. or dip. from regu. school.	With Clerk of county of practice.	C. A. Waldron, Sec., Tecumseh.	State Veterinary Board.	
Minnesota.	.....	Grad. from legally authorized school.	Examination.	With the State Board.	M. H. Reynolds, Sec., St. Anthony Park, St. Paul.	Board of Vet. Med. Examiners.	
Mississippi.	.....	.....	.....	.....	.....	.....
Missouri.	No requirements.	No requirements.	Examination.	With the State Board.	D. F. Luncey, Sec., St. Louis.	Veterinary Examining Board.	

[illegible]

NEWS AND ITEMS.

It is a miserable thing to live in suspense. It is the life of a spider.—(*Swift.*)

DR. D. C. BURNETT succeeds Dr. A. E. Luks as Inspector in charge, B. A. I., at Pottsville, Pa.

VERMONT has appointed a barber to test dairy cattle for tuberculosis at Island Pond in that state.

Asked in an examination paper to explain what a buttress is, one boy replied, "A woman who makes butter."

ASBESTOS BLANKETS.—The suggestion is made that fire department horses be provided with asbestos blankets.

ALTHOUGH a fact yet it is hard to realize that the weight of the harness carried from morning until night on the backs of some draught horses in our big cities is as much as seventy pounds on a single horse.

THE AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS has added Dr. W. Reid Blair, veterinarian and pathologist of the New York Zoological Park, and Dr. Frank Miller, veterinarian to the Westminster Kennel Club, to its staff of official veterinarians.

Dr. N. S. MAYO, Chief of the Bureau of Animal Industry of Cuba, has been recently in the southern states purchasing live stock for the Cuban Government. While there Dr. Mayo made his headquarters at Houston, Texas, where he was a guest of his college friend, Dr. W. A. Knight.

THE Board of Regents of the West Virginia University has decided to establish a regular three-year course in veterinary science. The school will open its doors in September with a faculty of several veterinarians, two M. D.'s, and instructors connected with the agricultural college.

HIS HAPPINESS EXPLAINED.—He—Scraggs seems very happy for a man just returned from the burial of one of his wife's dearest friends.

She—Indeed? Who was it?

He—Her pug dog.—(*Brooklyn Life.*)

Chas. H. Higgins,
OTTAWA, CANADA.

No.

AMERICAN VETERINARY REVIEW.

JUNE, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, April 15, 1908.

PROF. LAW RETIRES.—With this month of June an event of some importance will take place in the veterinary world of America.

Prof. J. Law, F.R.C.V.S., retires from the directorship of the New York State Veterinary College, and his place is to be filled by Prof. Veranus A. Moore, B.S., M.D., appointed by the Board of Trustees of Cornell University.

Both of these gentlemen are well known to all of us and their scientific attainments have shown how well deserved the position was for either. No doubt the profession will remember the work that Prof. Law has done and will watch that of Prof. Moore, calculating on what she can expect from him in judging by the good work he has already done.

Prof. Moore, B.S., M.D., becomes director of one of the first and one of the best veterinary colleges in America. He probably will keep the chair of Comparative Pathology, Bacteriology and Meat Inspection. For years he has worked in that direction. He has made his reputation by it. He is known all over the world for his researches in Comparative Pathology and Bacteriology.

But what about the chair left vacant by the retirement of Prof. Law, that of the Principles and Practice of Veterinary Medicine, Veterinary Sanitary Science and Parasitism? Prof.

Law, F.R.C.V.S., is a veterinarian, and, evidently, a graduate of veterinary medicine must be his successor. Who will he be? An American or some one from the continent? We certainly hope that an American veterinarian will be selected.

There is no doubt that Director Moore could be the right man for the place, as he has had much veterinary practice; he is well acquainted with the various requirements of the department left vacant by Law's retirement. Then—Of course! But even if as a B. S., M. D., the veterinary world will gladly accept him as a director of a veterinary school, will it be so if he takes the other chair? How much more satisfactory a title of Veterinarian, added to those that he has already, would be; that is, if he becomes Professor of Theory and Practice. In this case could not one of our schools grant him the degree and permit him to become for every one a true son of the great family of American veterinarians, as he is one of its brightest workers?

* * *

PASTEURELLOSIS.—The subject of Pasteurellosis is one which presents considerable interest and deserves the attention that bacteriologists have given to it. Among those, one of the principal, is Prof. Lignieres, the learned Director of the National Institute of Bacteriology at Buenos Ayres, to whom the scientific world owes so much on that question. In a recent number of the *Revista Veterinaria de Espana*, he has published an article resuming the opinion which he has taught since 1898, and from this, Mr. Panisset, in the *Semaine Veterinaire*, has made the following extracts, which resume the actual condition of the subject.

The author, recalling the excessive ubiquity of Pasteurellas, remarks that these microbes are found in the water, in the ground and on the mucous membranes of healthy animals. Under the influence of some favorable condition these microbes, then saprophite, become pathogeneus.

The action of Pasteurellas may not be recognized. The organism is slowly invaded, the latent infection acts as a favorizing

cause and promotes at a given date the realization of a secondary infection. This action of the Pasteurellas had not been brought in evidence before the important researches of Lignieres.

Pasteurellas may give rise to sudden severe and septicæmic infection as the old *hæmorrhagic septicæmia* or again may exist as true, pure cultures in the parenchymatous structures where they proliferate. Acting as occasional parasites, they become the agents of secondary infections which complicate some verminous diseases or other infections.

Pasteurellas and Pasteurellosis are met within every region of the world and in all animal species, arranged by Lignieres as follows: 1° Aviary P. (Cholera of fowls), 2° Bovine P., Hæmorrhagic septicæmia, *Rinderseuche*, Pneumo-enteritis, *Barbone* of buffaloes, septic pleuro-pneumonia. Diarrhœa of calves, *White scour Enteeque*. 3° Ovine P., Enzootic pneumonia, *Lombriz*, infectious pneumonia of goats. 4° Pasteurellosis of wild animals or *Wildseuche*. 5° Pasteurellosis of swine or contagious pneumonia, pneumo-enteritis, *Swine plague*, *Swine fever*, *Schweineseuche*, *Schweisseptikæmia*. 6° Pasteurellosis of Equines, Typhoid fever, Influenza, Pneumo-enteritis, infectious pneumonia or *Brustseuche*. 7° Pasteurellosis of Carnivora, Dog distemper, Typhus of dogs or disease of Stuttgart; infectious pneumonia of lions and tigers. 8° Pasteurellosis of small rodentia, Septicæmia of hares and rabbits, Pneumonia of Beck.

* * *

On account of the number and of the varieties of complications that may accompany them, Pasteurellosis can be considered as the most dangerous disease of animals. And as many varieties of Pasteurellas can be made as there are species of animals. However exceptionally the same pasteurella may infect animals of a different species, as, for instance, the Aviary pasteurella may infect pig and rabbit or again that of bovines infect sheep. Lignieres insists very particularly on this point and on their importance for the obtention of serums and vaccines.

Already in 1899 Lignieres obtained from horses a polyvalent serum which was curative and preventive for the Pasteurellas, which had been used for immunization. On account of the difficulties that existed in the obtention of these serums and also because of the expense which render them of difficult use in veterinary practice, another method of vaccination was looked for, and in 1902 Lignieres made known the principle of his new method. The vaccines against Pasteurellas are cultures attenuated by age or by heat, in such a way that they give rise to a mild form of the disease, which is sufficient, however, to confer immunity against a natural infection. These vaccines are polyvalent, but only for each variety of Pasteurella. The production of polyvalent vaccines for all the Pasteurellas is possible, but has no economical advantages. For this reason, Lignieres recommends the use of serum which have a special polyvalency. Vaccines are exclusively preventive and must not be given to sick animals.

For a very long time it has not been possible to obtain anti-pasteurellic vaccines truly efficacious, but at present their preventive power has all the real value of the vaccines of Pasteur against bacteridian anthrax. The best results are obtained for the prevention of Pasteurellosis in acute forms; with chronic forms it is more difficult to immunize. Low-bred animals do not suffer by the vaccination, but improved breeds are much more sensitive to them. For them the sero-vaccination is better. This method consists in a simultaneous injection of anti-pasteurellic serum and vaccine, followed ten days later by another injection of vaccine. The vaccinations have to be renewed every year or at the very least every two or three years.

* * *

PHARYNGEAL PARALYSIS.—It is well understood that in horses any interference to deglutition will necessarily involve the expulsion through the nose of that which cannot pass down the œsophagus. But, if exception is made for the acute affections of the pharyngeal region, in which such manifestation is

observed, there are numerous cases where, says Prof. E. Zschokke, of Zurich, in the *Schweizer Archiv für Thierheilkunde*, it is very difficult during life to name precisely the nature of the obstacle preventing deglutition to take place, and to prove his assertions, he relates two cases which I have found in the *Revue Generale*.

In the first case—it was a mare of seven years—which since three weeks has great difficulty in swallowing. She had some discharge from the nose, has had no fever, and the throat is free from swelling. She has lost flesh, her temperature is normal. The discharge from the nose is thready, whitish and made up of saliva. All the other functions seem normal. The parotido-pharyngeal region is free from pain, nor is it swollen. Deglutition is absolutely impossible, and food, solid or liquid, as soon as taken in the mouth is rejected by the nostrils. The animal died with starvation eight days later.

At the post-mortem all the principal organs are found normal. The laryngeal, tracheal and bronchial mucous membrane is injected but not inflamed. Likewise is the pharyngeal in its lower part. The right guttural pouch is the seat of an abundant croupal exudate, more or less yellowish in color, and the surrounding tissues are infiltrated. The microscopic examination of the pseudo-membrane shows the presence of colonies of mycelium, of a kind of aspergillus which had probably entered by the nostrils, traveled to the guttural pouch, found there excellent conditions for its growth and proliferation and secreted a toxine which acted on the nervous threads of that region and thus promoted a pharyngeal paralysis.

* * *

The second case is also peculiar. A six-year-old mare cannot eat since two days. The throat and the œsophagus are free from pain and swelling. The salivation is very abundant, but there is no cough nor any discharge from the nose. She takes water with avidity, swallows it and does not reject it. When oats or bran mashes are given to her, she masticates them with

relish, but cannot swallow them, and she rejects them immediately. If by force she is made to swallow, the muscles of the neck enter into violent contractions and the animal manifests great acute pain. Otherwise the mare is quite gay, her temperature is normal and all the great functions are regular.

On account of absence of pain in the throat and of the possible deglutition of liquids, the supposition of an obstacle to the function is left aside and alimentary drenches only are prescribed. For three days the condition remains the same, but then there appeared at the lower part of the left jugular region a soft, painless swelling which on pressure gave a peculiar crepitating sensation and which on percussion gave a tympanitic sound. Suspecting stenosis of œsophagus in the thoracic portion of the organ, œsophagotomy was going to be performed, when suddenly the temperature went up, intense dyspnœa was exhibited and extreme weakness. Fearing a rupture of the œsophagus the animal was immediately destroyed.

At the autopsy all the organs were found normal with the exception of the left thoracic cavity which was the seat of putrid pleurisy of recent origin. The œsophagus was normal in its cervical portion, but in the thoracic it was much dilated and contained a putrefying mass. The mucous membrane was entirely loose from the muscular, and between them was a greenish material, fetid in odor and made up of food in putrefaction. The muscular layer was infiltrated and on a level with the cross of the aorta it had a perforation large enough to introduce the finger. Without knowing the origin of these lacerations it is easy to understand how the complications of the thorax can have taken place.

And yet, if the second post-mortem does not explain the true cause of the difficulty in the deglutition, the first one illustrates very well that other causes than those of acute diseases of the throat may give rise to this serious complication and ought to be borne in mind.

COCAINIZATION OF THE PLANTAR NERVES FOR THE GENERAL DIAGNOSIS OF THE SEAT OF LAMENESS IN BOVINES.—Our readers have probably taken good notice of the remarks that I have written in relation to the use of cocaine in the differential diagnosis of lameness. I claimed the priority of the application for an American veterinarian, although I had to express my regrets for not being able to produce more scientific evidences of the results obtained in Ohio. At any rate I think the fact is now well established, notwithstanding what may be written, or unless stronger evidences are produced against the American claim.

In Italy, a veterinarian, Doctor Emilio Pesadori, has recently, in the *Clinica Veterinaria*, published a long article on the similar application which he has entitled, "Cocainization of the Plantar Nerves for the General Diagnosis of the Seat of Lameness in Bovines." Whether the method can find as many and delicate applications in bovines as when resorted to for solipeds, is a question which may not be considered in the same light by every one, and yet it cannot be ignored that in many instances, when in presence of a bovine, whose movements are so slow and heavy, presenting to him enormous muscular masses, principally around the upper articulations of their legs, the veterinarian shall be in great difficulty to make a precise diagnosis, no matter how careful his examination may be, or even how well marked objective symptoms may exist. Then, undoubtedly, the indication for resorting to the use of cocaine will present itself.

* * *

The correct anatomy of the distribution of the plantar nerves is therefore essential to know, and not being satisfied with that which he had found in the classical works, Doctor Emilio Pesadori has made many dissections, has located the exact position of the nerves in the anterior and posterior extremities, and has illustrated his article by plates of the plantar metacarpal and metatarsal nerves, and with them, has also shown the points where the injections are to be made, to be beneficial.

As may be seen in glancing at the rough figures that I send you, the author does not accept two injections to obtain satisfactory results. This is due to the peculiar distribution of the nervous branches. The Doctor recommends for either, the metacarpal or the metatarsal, three injections. On the metacarpus, injections shall be made at No. 1, plates 1, 2 and 3. On the



FIG 1.—Metacarpus and Metatarsus. Anterior Face.

- 1.—Injection on Metacarpus.
- 2.—Injection on Metatarsus.



FIG 2.—Metacarpus and Metatarsus. External Face.

- 1.—Injection on Metacarpus.
- 2.—Injection on Metatarsus.



FIG 3.—Metacarpus and Metatarsus. Internal Face.

- 1.—Injection on Metacarpus.
- 2.—Injection on Metatarsus.

metatarsal at No. 2 of plates 1, 2 and 3. The solution used is the same as that for equines, 15 centigrammes of muriate of cocaine in 5 grammes of distilled water for each injection. The syringe which he uses is somewhat stronger than the ordinary one, at least as far as the needle goes.

In conclusion, the author records three cases where the advantages of the use of cocaine are brought out by the correctness of the diagnosis obtained in each case.

It is certain that the method deserves attention and may find its application in bovine practice. Perhaps we may hear from some of our friends in that direction.

* * *

BIBLIOGRAPHY.—The house, W. R. Jenkins Co., has brought out lately a catalogue of some recent novelties it publishes and among them two works from one who is already well-known to the American veterinary readers, Doctor Kenelm Winslow, B.A.S., M.V., M.D. (Harvard). Of those two works I have received copies for reviewing. The first is the fifth edition, revised and enlarged, of "Veterinary Materia Medica and Therapeutics."

It seems but a very short time since the first edition of this book was presented to the American public and ever since the demand has been such that every edition has been disposed of before the publishers knew it. The fourth edition was issued but two years ago. Under such a condition it seems impossible at first to review a work which is represented so often and specially when its qualities have been so well considered in the successive issues, and it then would appear that what had been said could be repeated. But with Doctor Winslow there is one thing which always makes room for special attention. For instance, let us take a copy of each edition, the 4th and 5th. For the greater part of both books a perfect similarity will be observed until one reaches the end, when he will arrive at the part which makes the most important feature of the new book.

It is the substitution of a section on "Condensed Treatment of the Diseases of the Domestic Animals" to take the place of the "Index of Diseases and Remedial Measures," found in the 4th edition. The preparation of this new section has demanded much work on the part of the author and has permitted him to add 54 pages of good reading matter to his book, as every article

is brought up to most modern and progressive standard of veterinary therapeutics. This epitome covering the last 77 pages of "Materia Medica" gives general indications for all the forms of treatment of the most important diseases of our domestic animals and embraces medical as well as surgical therapeutics of all the various organisms. This is, I believe, an entirely new departure in works relating to veterinary materia medica and therapeutics. There is an excellent work in "Human Medicine," by Prof. S. O. L. Potter, where somewhat similar arrangements exist, but the subject covers a wider scope.

The addition of the epitome of Doctor Winslow is, no doubt, of great importance. It certainly adds to its value, and all the approval and marked appreciation that have already been shown for the previous editions of the book will have an opportunity to be repeated by all those who will read it. That is by all students of American veterinary colleges and also by every practitioner.

* * *

The second work due to the pen of Doctor Winslow is entitled "The Production and Handling of Clean Milk."

If one takes into consideration the importance that milk questions have of late assumed in scientific and sanitary circles, if he has taken notice of the many journals created that treat of milk, of the writings that find their way in all scientific publications, of the legislative measures that every country is taking, certainly the issue of a work like the one of Doctor Winslow will be found appropriate to the times and to the circumstances. Probably the first of its kind in America, the book is written by one who seems to be well prepared for it. Graduate in Agricultural Science, in Veterinary and Human Medicine, as the Doctor says in his preface, he has had, besides, the advantages of a large practical experience in the production and distribution of clean milk.

Clean milk a grand qualification, which not only means clean as far as its elements and composition go, but means also clean in its true sense, *free of all external impurities!*

To reach these qualifications some essential conditions are necessary to fulfill, and the education of those who handle this product is an important subject. Doctor Winslow's book is to provide "a working guide for those pursuing or wishing to pursue one of the most wholesome, worthy and laudable undertakings." In a work of 200 pages, with 47 illustrations and 15 plates, the subject is presented in nine chapters: "Germs in Their General Relation to Milk," "Composition of Milk and Cream and Their Products," "Milk Products," "Feeding for Milk," "Housing and Care of Cows," "Handling of Milk and Cream," "Cost of Producing and Distributing Clean Milk," "Some Hints Concerning Milk Distribution," "Milk Inspection." There is also an appendix with plans of barns, milk houses, etc., etc., and, finally, a general outline for the control, supervision and inspection of a city milk supply.

This handy treatise will prove of great and useful interest to the milk producer, to the veterinarian, to all those, in fact, who will realize the important necessity of securing the benefits of the application of sound hygienic and sanitary measures.

* * *

THE REPORT OF THE CHIEF OF THE BUREAU OF ANIMAL INDUSTRY for the fiscal year ending June, 1907, reached me a few days ago. It is concise and, of course, differs from the large volume we have been used to receive. But the reason is that it is only the general report and does not contain the other publications delivered during the year and which were quite numerous and issued separately.

In this last report are to be found the results of meat inspection under the new law, which "has overcome several defects of the old and has enabled the Bureau not only to extend the inspection but improve its efficiency. The important matters of sanitation, of slaughtering and packing establishments, preparation of meats and products, use of chemicals, preservatives, etc., and prevention of fraudulent labeling are now controlled and regulated."

If now foreign sanitarians are not satisfied, what else can be done? And again, see that commission of experts, the cream of our sanitarians, appointed to consider and advise relative to those portions of the department's meat inspection regulations relating to the disposition of carcasses affected with various diseases and abnormal conditions. The members are: Dr. W. H. Welch, Professor of Pathology at Johns Hopkins University; Dr. L. Hektoen, Director of the Hygienic Laboratory, U. S. Public Health and Marine Hospital Service; Dr. J. Hughes, of the Chicago Veterinary College; Dr. V. A. Moore, of Cornell University; Dr. Leonard Pearson, of the University of Pennsylvania, and Dr. C. W. Stiles, of the U. S. Public Health and Marine Hospital Service.

After this part, reports are made relating to the improvement of milk supply, on the tick eradication, the eradication of scabies which is retarded by the removal of fences, the need for another experimental farm. Following this come the reports of the work of the eight principal divisions of the Bureau, Inspection, Quarantine, Pathological, Biochemic, Zoology, of the Experimental Station, of the Office of Animal Husbandry and of the Dairy Division. All of which have their special interest and among them the Inspection and the Pathological divisions where contagious diseases occupy pre-eminent places.

The report is short, covers only 69 pages, but in it Dr. A. D. Melvin has succeeded well in gathering the results of the great amount of work supervised by him with the assistance of his excellent staff.

A. L.

THE STATUS OF VETERINARY EDUCATION.

Two events of much significance in the educational world and of far-reaching importance to the veterinary profession, as well as to the public, have recently occurred on this side of the Atlantic—one in the Dominion of Canada and the other in the United States of America.

We refer, in the first instance, to the change of government and the extension of the curriculum of the Ontario Veterinary College in Canada from two short terms to a graded three-year course. In the second instance, we have reference to the appointment by the United States Government of a Commission on Veterinary Education for the purpose of obtaining definite information regarding matriculation requirements and course of instruction which is now being given in the various veterinary schools on the American continent. The commission is also to report as to what, in its judgment, should constitute the minimum requirements for matriculation and course of professional study to qualify veterinary graduates to participate in the Civil Service examinations for positions in the government service.

Recent reports of the Committee on Intelligence and Education of the American Veterinary Medical Association have shown wonderful development and a constant elevation of the standard of education in most of our schools. There is a great deal that the profession is justly proud of notwithstanding the fact that the investigation and inquiry by our international association has revealed unsatisfactory as well as commendable conditions even in the best schools. This is not to be wondered at when we consider how young the veterinary profession is on the American continent and the difficulties its pioneers had to meet and surmount for many years, in most instances, without recognition, support or encouragement from either state or the federal government. This is now all gradually but surely undergoing a radical change. We witness state after state recognizing the value of veterinary science to the commonwealth by appropriating large sums of money for veterinary education which causes every true veterinarian to rejoice. The advance guard of the profession is beginning to look forward to the time when a proper matriculation examination will be required to enter any American school and in anticipation of the establishment of an adequate four-year course of nine months each in the better schools. The American Veterinary Medical Associa-

tion and the affiliated Association of Veterinary Faculties and Examining Boards of North America will continue to harmonize the standard of veterinary education in America until their high ideals are fully attained.

The academic and professional standards established by state boards, civil service commissions and qualifications required of persons to fill important positions in educational institutions, experiment stations, agricultural and public health boards are likewise potent influences at work demanding not only a higher but a broader education for the veterinarian.

The adoption of a three-year curriculum by the Ontario Veterinary College brings the last school on the American continent, worthy of the name, up to the minimum educational standard adopted a number of years ago by the American Veterinary Medical Association for eligibility to its ranks. This is a great stride in advance. The school and the profession are alike to be congratulated.

Dr. E. A. A. Grange has been appointed Principal of the Ontario Veterinary College, which has been taken over by the Ontario Government, to be conducted as a provincial institution by the Ontario Department of Agriculture on lines similar to the Ontario Agricultural College. The Department has also leased the buildings of the old college.

Dr. Grange is a son of the late Sheriff Grange, of Guelph, an importer and breeder of thoroughbred horses as far back as 1852. He was graduated as a veterinarian from the Ontario Veterinary College in 1873. For a time he was a lecturer at the college. From 1873 to 1882 he was professor of veterinary science at the Ontario Agricultural College. In 1882 he was appointed professor of veterinary science at the Michigan Agricultural College, and for some years was State Veterinarian of Michigan. During the past six years Dr. Grange has been engaged in private practice in the City of New York and vicinity. His first work in his new position is to provide for a three-year course in keeping with the advancement of the science.

The United States Commission on Veterinary Education was appointed by the Secretary of Agriculture, and its organization consists of Dr. Richard P. Lyman, Secretary of the American Veterinary Medical Association, *chairman*; Dr. A. M. Farrington, Assistant Chief of the Bureau of Animal Industry, *secretary*; Dr. Joseph Hughes, President of the Association of Veterinary Faculties and Examining Boards of North America; Dr. Tait Butler, Secretary of said association, and Dr. Paul Fischer, State Veterinarian of Ohio.

It would be impossible to select a more representative body of veterinarians than these gentlemen who are all active and influential members of the American Veterinary Medical Association and who have been closely identified with the work of the organization in the advancement and upbuilding of the veterinary profession in the western hemisphere.

The profession will await with much interest the appearance of the official report of their labors. The REVIEW feels confident that the schools will gladly comply with such recommendations as the Commission may make for the betterment of conditions for the benefit of veterinary education and the advancement of the science.

We anticipate that the defective features in the teaching facilities of each school will be pointed out and that a minimum standard will be recommended which schools will have to maintain in order for their graduates to be eligible to take the civil service examination for government employment. This cannot help but be productive of much good in crushing out unworthy schools and in strengthening weak schools of the right kind by bringing them up to a higher state of proficiency which will redound to the benefit of veterinary education in general.

NO CHANGE OF DATE.

Notwithstanding the fact that out of a vote totaling approximately five hundred there were registered only six votes in the negative, yet President Dalrymple has found it wise, after

proper deliberation, to make a strict interpretation of the by-laws and has decided that the 45th annual meeting of the American Veterinary Medical Association shall be held on the 8th, 9th, 10th and 11th days of September, as originally announced from the Secretary's office.

The six members voting in the negative expressed themselves most emphatically against a change of date for the forthcoming meeting at Philadelphia, claiming that the proposed change as recommended by many members to the Executive Committee would materially interfere with the vested rights of members which is prohibited by article XII., section 2 of the by-laws. A legal opinion was obtained and it was found that the vote was negative as there is no provision legalizing a postal card vote, it being merely an expression of opinion of the membership. If the vote had been unanimous the proposed change of date could readily have been made, but as it stood there did not seem any alternative for President Dalrymple but to render his decision in conformity with a strict interpretation of our by-laws.

There is, however, a practical way out of such a legal difficulty which could have been accomplished, if thought advisable, by calling the meeting on the regular date but for the great body of members not to attend until the latter date, leaving the members of the local committee to adjourn the meeting from day to day in the same manner as is sometimes done by legislatures and other representative bodies. The propriety of this method may be somewhat doubtful for our purpose and we believe it might be otherwise unsatisfactory.

Furthermore the President has rendered his decision and the only thing for us to do is to make our plans accordingly. Veterinarians must not look too seriously upon the decision, for after all it simply means that their vacation is to be extended one week longer than originally contemplated, and goodness knows there is no one who needs a vacation and rest more than the veterinarian and his family.

EPIZOOTIC LYMPHANGITIS.

Epizootic lymphangitis of horses was discovered some time since in the state of Pennsylvania, as recorded last November in the REVIEW. The disease has since been reported from other states of the union.

In some instances the disease has been mistaken for chronic farcy, and has been diagnosed as such, and the affected animals have been destroyed. It appears, however, that some of these cases of so-called chronic farcy are in reality cases of epizootic lymphangitis.

Where there is the slightest doubt as to the nature of the disease no veterinary practitioner should content himself without a laboratory diagnosis. Cultures made from affected animals will disclose the specific organism, the *Saccharomyces farciminosus*. Economic as well as scientific considerations demand a definite and accurate diagnosis.

ACADEMY OF SCIENCE SELECTS VETERINARIAN FOR ITS PRESIDENT.—The REVIEW believes that veterinarians should never lose an opportunity to engage in related scientific research work and investigation, and it sees results of inestimable value and far-reaching import to be attained from associated efforts.

We note with pleasure that our talented colleague, Dr. Tait Butler, of Raleigh, N. C., who has labored long and well to bring the veterinarian and those having allied interests into a closer touch, has not only been highly successful in his accomplishments in that direction, but that the relative value and usefulness of his work has been *recognized by members of other learned professions* in his recent election to the presidency of the Academy of Science of his state.

GUITAR FAILS TO STOP BULL.—At the Almanzar bull ring in Madrid a performance was recently given by Arrogante, a famous matador, who tried in vain to imitate Orpheus in the bull ring. The bull-fighter stood alone in the arena playing a guitar when the bull was loosed from the toril, but the charms of his music were powerless to stop the rush of the animal, which put an end to his Orpheus act by goring him badly.

ORIGINAL ARTICLES.

BIER'S CONGESTIVE HYPERÆMIA IN VETERINARY PRACTICE.*

By Dr. THEODOR SCHMIDT, *Adjunct to the Surgical Clinic of the Royal Veterinary Academy in Vienna.*

Translated by Dr. A. T. PETERS, *Professor of Animal Pathology in the University of Nebraska.*

Early in the year 1905 Prof. Bier reported to the Surgical Congress in Berlin a hundred and ten cases, which had been treated according to his method by means of congestive hyperæmia and published in the *Münchener Medicinische Wochenschrift*, Jahrg., 1905, Nr. 5-7. His article on the treatment of acute suppuration by means of congestive hyperæmia (Behandlung akuter Eiterungen mit Staungshyperämie) is a monograph from his pen. "Hyperämie als Heilmittel" (published by Vogel in Leipzig) had already appeared in 1903.

Immediately after the publication of this work, with the sanction of the director of the clinic, Prof. Dr. Bayer, I first attempted to prove the usefulness of this method of treatment which had yielded such good results in the human subject.

Dr. Bayer also laid emphasis on experiments to determine its effect in bacterial inflammations of tendons, of tendon sheaths, in periostitis fibrosa, etc. Results of these were to be recorded whenever reported.

Before I give my observations I should like to review the comprehensive work of Bier and the other literature, already considerable in amount, pertaining to this subject. I will here occasionally quote the authors verbatim. This may be desired by many of my colleagues, who are not located where they may read these publications, since they may then form an opinion concerning the view of Bier and thus ultimately discover another

*Read before the Nebraska State Veterinary Medical Association.

and perhaps more practical method of applying this treatment from a veterinary standpoint, as we determined in the clinic. For the veterinary surgeon it may be of special interest to attempt a scientific explanation along the line of Bier's theory of the action of detracting or derivative remedies, such playing now as always a great role in all kinds of lameness, which is the most important and most difficult part of veterinary surgery.

In the introduction to his great monograph Bier points out the importance of biology on which the practice of medicine is necessarily based if it claims to be a science. He lays stress, however, on the fact that the etiological standpoint must not only be sound, but that it must also agree with conditions observed in nature.

Hence he emphasizes the fact that all important manifestations of life are accompanied by hyperæmia. Every organ, which functions, is hyperæmic. In all growth and regeneration hyperæmia is present. All procreation or propagation is characterized by the greatest hyperæmia. There is no centre of disease which the body seeks to remove or render inert that is not permeated or surrounded by hyperæmia. If the reactions of the body are to be regarded as useful attempts at repair or cure, then we must admit that the most universally present means of Nature's healing is hyperæmia. The organism thus exhibits local hyperæmia in all important changes in the various parts of the body. This hyperæmia is brought about by retardation as well as by acceleration of the blood stream. Thus, if we wish to support the healing power of the body, and would imitate nature, we must accelerate the blood stream, producing arterial or active hyperæmia, or retard it, bringing about passive or venous hyperæmia.

(a) *Production of Active Hyperæmia.*—There are many methods at our command. Very useful in practice and in use for the last thousand years is heat which may be applied in the greatest variety of ways. Dry heat may be used in the form of radiant heat, hot sand, hot air, etc. Moist heat may be em-

ployed as hot poultices, cataplasms, fomentations, baths, douches, mud, and hydro-thermo regulator of Ullmann as reconstructed for the purposes of veterinary surgery by Bayer.

Increased muscular activity, various kinds of massage and electricity produce strong active hyperæmia. A great number of chemicals (tincture of iodine, mustard, turpentine, cantharides, etc.) may induce hyperæmia. At first sight there appears no doubt but that we are here dealing with an arterial hyperæmia, in accord with the old medical rule, "*Ubi stimulus ibi affluxus.*" This, however, is not proven, since all of these chemicals excite inflammation, in which a retardation of the blood stream follows the initial acceleration. It is likewise uncertain whether cupping produces arterial or venous hyperæmia, since the one gradually merges into the other. In the same group belong the now discountenanced rowel and pus-bandage, fontanellen and the ferrum caudents so highly valued in veterinary medicine.

From very early times methods of producing hyperæmia have been used against acute inflammations and suppurations in accord with various theories. Especially from the appearance, people supposed that the inflammatory œdema was something terrible and sought to draw away the stagnant blood or other bad fluid from the centre of inflammation into the skin. A false theory here led in part to a correct practice. In reality they increased the hyperæmia which they wished to remove.

Bier believed that the action of the irritating agents depended in the first place on hyperæmia and concluded that they act many times exactly like methods producing this alone.

Although many experiments on the physiological action of agents producing irritation of the skin (*revulsiva* and *derivantia*) have been made, we must say that as yet the ultimate action of irritants has in no way been scientifically investigated and this phase of the subject is merely referred to. Schede (*Archiv f. klin. Chirurgie*, Bd. XV., 1873) tried a number of cutaneous irritants, which he used on the tissues, especially the tincture of iodine in its local action. He was able to prove that the tincture

of iodine, merely painted on the skin, brought about œdema not only in this, the subcutaneous tissues, the muscles and the intermuscular spaces along with an infiltration of leucocytes, but he found the latter even in the periosteum. He demonstrated inflammatory stimulation also in the bone marrow and processes of growth in the cells of the epiphyseal cartilage. Mustard oil acted still stronger in this regard, and croton oil was the strongest of all.

He says that in a large number of cases the inflammatory stimulation produced hyperæmia for a great distance. Thus, Bier could always find that in deeply lying inflammatory centres the section through the skin above them already contained much more blood than normal skin. Where the incision of the abdominal wall has bled excessively in experimental laparotomies, he has often expressed the opinion that there would be found an inflammatory centre deeply seated in the abdomen and was usually correct in this. In this case it depends on the blood vessels which are connected at best by insignificantly developed tissues. In confirmation of this, Bier has several times found the cutaneous temperature itself raised one or more degrees in cases of chronic deep-seated inflammations. Bier says, "Would a deep-seated inflammation extending outward to the surface act otherwise when turned about?"

Bier has determined how far an inflammation due merely to some chemical can extend from the place where it is first induced. He applied oil of turpentine and thus quickly healed a pseudo-arthritis of the thigh which had resisted all kinds of treatment, even suture of the bone and injection of tincture of iodine. It caused, however, an excessive reaction; the leg swelled with great œdema from the toe up to the groin; it felt hot to the touch and remained in this condition several days. We were able to make similar observations in the clinic, following the widely recommended subcutaneous injections of oil of turpentine in cases of shoulder lameness in the horse.

To the devulsives may be added the use of the cautery on the skin. Even to-day this is not forgotten in human medicine

and is employed especially in very stubborn and painful spinal inflammations for producing a broad ulcer on either side of the back. Without further argument it is clear that this method brings about a very high degree of hyperæmia of the skin. That the hyperæmia extends deeply is very apparent since a long continued inflammatory hyperæmia would naturally follow in case the ulcer resulting from the cautery did not remain entirely aseptic and heal under a scab as a consequence. In order not to be misunderstood, Bier further observes that he does not intend to deny the reflex action of devulsives on distant parts of the body and admits the possibility that healing processes may thus be induced. The principal action of devulsives, however, is to call forth a hyperæmia of the diseased or injured portion of the body. In this way they perform a function quite the opposite of their name.

Bier also explains the action of salicylic acid on diseases of the joints by hyperæmia. Similarly he explains the action of Finzen's light in lupus. He regards the action of erysipelas in the same way when this spreads over a patch of lupus.

A never disputed action of devulsives is the very apparent relief of pain. The opponents of the method must recognize this fact. They cling to the explanation that it is due to suggestion. This is an easy way out of the difficulty. In animals, however, suggestion is of no value. We could produce clinical experience to show that after the application of an irritating salve, *e. g.*, in an acute serous tenosynovitis of the tendon of the os suffraginis, as soon as the first pain caused by the substance applied was over, the animal was at once much less annoyed by the limb concerned in many cases. Aside from this, however, these methods produce results which may be explained by hyperæmia in that they act by absorbing and dissolving. Of course, the use of any of the cutaneous irritants causes a certain amount of destruction of the tissues since they produce an inflammatory irritation, which always signifies an injury to the tissues. The congestive hyperæmia, on the other hand, induces the hyperæmia and its results entirely without injury.

(b) *Excitation of Passive Hyperæmia.*—Paré appears to have been the first man to recognize the value of artificial congestive hyperæmia in deficient callus formation. Then Nicoladoni con Dumreicher is said to have recommended passive hyperæmia in threatened pseudo-arthritis. Aside from fractures and experiments in nutrition no one before Bier has employed congestive hyperæmia. Since 1892 Bier has tried this also in tuberculosis of bones and joints, and to him belongs the credit of having recognized the value of this method in a very great variety of inflammatory processes. For more than a decade Bier labored in spite of slight recognition and much opposition to further improvement of this method or extension of its use in an intelligent manner until the treatment finally found its way into human surgery.

The obstructive hyperæmia treatment is carried out in the manner following: Above the lesion there is applied around the limb concerned a rubber bandage in several layers so firmly that a great obstructive hyperæmia arises. In acute inflammations this is attained by relatively slight constriction. The bandage should produce if possible a red fiery œdema. It should not be applied too near the seat of the trouble; in inflammatory diseases of the hand and of the foot it should be placed as a rule on the arm and thigh respectively. In this way, especially on the arm, one may frequently observe that the appearances of inflammation which were before limited, for example, to the hand, very soon extend up to the bandage on the arm but not above it. The parts of the body peripherally or distally to the inflammation focus are not involved but are merely subject to the hyperæmia, so that the entire treatment consists in applying a rubber bandage above the diseased part. The bandage must never cause pain in the diseased area, since here also, as in other diseases where the obstructive anæmia treatment is indicated, the almost immediate quieting and lessening of the pain is the most apparent result of the treatment. In acute inflammations a blue color of the limb must be avoided even more certainly. This can be accom-

plished by applying the bandage more loosely than before. One must not be too timid, however, in applying the bandage closely, if he expects results.

The acutely inflamed limb must become greatly swollen and oedematous, must feel warm to the patient and be fiery red where possible. If this is no longer to be attained, then the height of the disease is already past, as a rule, and it is on the way to improvement and near recovery. Occasionally vesicles appear on the parts treated. This is usually because the bandage is too firmly applied or there is an abscess present, which demands an incision and drainage.

In acute suppurations the bandage is worn daily for at least ten hours. In severe cases this is not long enough. The time must then be increased to twenty or twenty-two hours to get results. With regard to the time limits we must individualize. After an interval of freedom from the treatment, during which the appliance can be changed, the bandage is placed either higher or lower than before. If it is placed lower it must be tightened as soon as the obstructive oedema produced by the previous treatment is removed. In proportion as the pain is lessened, the obstructive or congestive period can be shortened. The greatest attention is necessary during the first day, since Bier believes that the fate of inflammation and suppuration treated by an obstructive bandage is decided most of all in the first days. If the bandage produces signs of pressure, a soft cotton bandage can be interposed, or several pauses may be made during the day. Lymphangitis and lymphadenitis are usually improved even above the bandage, because they drain the original diseased focus favorably and in addition the absorption of the bacterial toxin from this is lessened. From this Bier knew that in the longer application only the hot congestion is efficacious; the cold, on the other hand (from too long use of a bandage applied too tightly), may bring injurious consequences, because it leads to significant disturbances in the circulation. Instead of the elastic bandage, aspirators and cupping-glasses are used for many parts of the body.

(c) *General Actions of the Hyperæmia*—

1. Relief of Pain.—There is scarcely an action of hyperæmia which is more apparent than the lessening of pain. We must abandon the old view that hyperæmia, for example inflammatory hyperæmia as such, causes pain. On the contrary, this arises from the injury of the cells and nerve endings, which happens in any inflammation and which is repaired by the subsequent hyperæmia. The long known thermal relief of pain is according to Bier entirely produced by the action of hyperæmia. The analgesic action of hyperæmia is not merely useful, but it is agreeable to the patient. This is the principal action which restores mobility of stiff joints soon after its use. Since the stiffness of the joints in all kinds of inflammations is only in part dependent on grave anatomical causes, another part is brought about and maintained by muscular contraction, the first cause of which was the painful irritation of the nerves in the joint. The contraction as a sequel of the pain vanishes when this is relieved. Only thus can we explain that stiff joints become movable immediately after the use of an agent producing hyperæmia. Indeed pain and stiffening again appear very soon after the removal of this agent. If the hyperæmia does nothing more than relieve the pain during or even for a long time after its application, we are merely getting a sham result. Fortunately, this method has numerous other actions which favorably influence the causes of disease and the anatomical conditions resulting from them, so that the pain of the injured or diseased parts is soon diminished or vanishes altogether not only directly because of the hyperæmia but mostly indirectly through improvement of the disease.

2. Bactericidal and Attenuating Action of the Hyperæmia.—Nötzels succeeded in saving the lives of 51 out of 67 rabbits by means of obstructive hyperæmia applied to parts of the body into which he had injected otherwise fatal doses of anthrax bacilli and very virulent streptococci. That the obstructive hyperæmia alone prevented the death of the animals is proven by the fact

that all of them were inoculated with the same bacteria a few weeks later but without treatment by obstructive hyperæmia, and the infection ran its course as it did also in the control animals. Of course, an artificial, fresh infection is quite different from one acquired in a natural way, where the bacteria are already adapted to the conditions found in the body and in part apparently to the resistance found here. Nevertheless the experiments have a high value. The bactericidal action has been investigated by several for the purpose of harmonizing the various views held as to the protective value of the different constituents of the blood.

Buchner explains them by the increased number of leucocytes at the place of infection. These kill the bacteria by giving off *alexins* to the serum. In later works he attributes the digestion and dissolution of the bacteria to *enzymes* which the blood contains, especially from the disintegrated white corpuscles.

Heller thinks that the obstructive hyperæmia retains or holds back the products of metabolism of the bacteria. These products in turn kill the bacteria. Thus, in tuberculosis we would have a tuberculin-like action.

Hamburger says: "Through the congestion the blood becomes richer in CO_2 and this increases the bactericidal power of the serum, because the CO_2 itself is bactericidal, because under its influence the red blood corpuscles swell by taking up water from the serum, thus raising the concentration, and lastly because the serum takes up diffusible alkaline salts. This last happens partly because with the greater concentration of the serum the percentage of alkali is increased; partly because under the influence of CO_2 alkali passes out of the blood corpuscles into the serum and, through destruction of albuminates of the serum, diffusible alkali is set free. Numerous experiments show the influence of the alkali on the antibacterial action of the blood plasma." For example, the immunity of rats against anthrax depends on the alkalinity of the blood, according to von Behring. Von Fodor was able to increase the resistance against

anthrax by injecting alkali into the circulation, and, vice versa, could lessen it by the introduction of lactic acid. Moreover, in immunized animals there is present an increase of blood alkalinity. Furthermore, Hamburger could prove that the bactericidal power of the blood plasma is increased in venous congestion and that the lymph arising from this œdema is more strongly bactericidal than the blood serum of the same animal, which serum, otherwise, exceeds the normal lymph in this regard.

The influence of the CO_2 on the phagocytes (chemotaxis) in venous congestion is but slight and a large amount of CO_2 is necessary to retard the activity of the leucocytes. In moderate congestion the phagocytosis is greater; hence one might explain the action of obstructive hyperæmia according to Metchnikoff's views.

Obstructive hyperæmia thus accords with all of these theories.

Prof. von Baumgarten, of Föbingen, recently published some experiments on the action of Bier's obstructive hyperæmia ("Ueber experimentelle Untersuchungen über die Wirkung der Bierschen Stauung," in *Münchener med. Wochenschrift*, Nr. 48, Nov. 27, 1906). Since he secured some results which do not harmonize with the theories mentioned above, I should like to present the most important of them here. According to von Baumgarten various causes apparently take part in the action: "Doubtless the bactericidal power of the congestive transudate plays a role, even though it may not be correct that the congestive transudate possesses a stronger bactericidal power than the blood serum of the same animal, as stated by Nötzel. The bactericidal power of the congestive transudate, as Heyde reported from certain experiments, is decidedly much weaker than that of the corresponding blood serum, which is very apparent as we have long known, on account of the smaller albumen contents of the former as compared with the latter. Nötzel is probably right, however, when he regards the increased accumulation of a bactericidal fluid in the tissue incident to venous congestion as a factor in the healing action. The bactericidal fluid in the tissue incident to venous congestion is a factor in

the healing action. The bactericidal action of the fluid in the œdematous tissue, as Lexer has already suggested, is a two-edged sword, since it destroys more or less bacteria throughout a considerable area, but in so doing liberates the deadly endotoxins of these organisms. Many injurious secondary effects of the venous stasis in the congested parts may probably be explained, as I believe with Lexer, by the local action and dissemination of these liberated endotoxins. The acute exacerbations of the clinical course in severe cases may be similarly explained, as Lexer has observed in man and I in experimental animals, by the rapid absorption of these poisons after removal of the bandage. In beginning infections and in those of a less serious nature, the advantage of the increased bactericidal action brought about by the congestive transudate will overbalance by far the disadvantage of the endotoxins. In such causes the obstructive treatment paves the way for the healing processes. With what difficulty, even under such favorable conditions, the increased bactericidal power of the body fluids, due to obstructive hyperæmia, can completely destroy the bacteria is shown repeatedly by reports, experimentally proven, of the existence of virulent pus-forming cocci in foci of infection apparently healed by obstructive hyperæmia. The medical power of nature on which Bier's treatment depends cannot be overvalued. Important as may be the increase of the natural healing forces in estimating the efficiency of Bier's treatment, we cannot be ascribed the favorable results of the method to this alone. Next to this factor in importance there is a certain role played by the hindrance of absorption produced by the bandage. The significance of this factor was shown especially in our anthrax experiments in which the animals were saved from death by anthrax through retaining the bandage in place 36 to 48 hours, while they quickly died if the bandage was removed after 24 to 30 hours. Evidently this purely mechanical hindrance cannot have the significance of a true healing process. As another factor in the efficiency of this method may be noted the slowing of the circula-

tion and the lessening of the blood supply whereby the amount of oxygen available for the bacteria is decreased. This oxygen is especially necessary for ærobie micro-organisms such as the anthrax bacillus. Not without favorable influence also may be the dilution of the toxins due to the obstructive œdema. These toxins are produced by the living bacteria and not by the destruction of these as is the case with the endotoxins. Lastly, as I believe, the venous congestion, although it injures the tissue, is useful in so far as it injures to a much greater degree the bacteria also by means of the pathological change of the tissue metabolism. In this way it helps to free the tissue cells from the grasp of the bacteria. This view, which was scarcely regarded in former explanations, of the efficiency of Bier's treatment, is based on the observation that the specific parasitic organisms find the best conditions for existence and growth in the healthy tissues, which carry on normal metabolism in the body of the host. In connection with this it should be observed that every change of the normal metabolism in the tissues mentioned, can make of these a less favorable or even an unfavorable culture medium for the attacking micro-organism. To give to this good theoretical possibility a practical significance in the results of Bier's treatment and not to attribute these to the bactericidal action alone of the obstructive œdema, necessitates in my opinion the recognition of the very slow destruction of a part only of the organisms and merely the attenuation of others in the congested area, a pathological picture, which gives one the impression of a starvation rather than a death by poison from bactericidal substances. If we considered the increase of the action of the bactericidal serum and the decrease of the nourishing qualities in the culture medium of the bacteria concerned, as the chief factors of the happy results of Bier's obstructive treatment in infectious processes, then it is conceivable that this treatment is contraindicated in tuberculous processes, since the tubercle bacilli are practically indifferent to the bactericidal substances of normal serum and extremely resistant to starvation also."

According to Riedl's observations the walls of the veins and capillaries especially are affected by noxæ or poisons, perhaps toxins or endotoxins generated by the bacteria, so that the blood coagulates in the vessels. This coagulation, however, extends further than the causal injury of the vessel wall; we may thus infer that a greater portion of the tissue always suffers damage from malnutrition due to a failing supply of nourishment thus injuring the bacteria, than that included in this area made directly incapable of life. Thus an extension of the inflammation may be regarded as a continuous advance of the smallest and smaller venous inflammations. The dilatation of the veins in inflammation is mostly for the purpose of carrying away the increased blood supply, improving the nourishment, providing for the quickest possible establishment of the collateral circulation in case of thrombosis, and giving the most unfavorable conditions for coagulation process as well as promoting the formation of granulations. For this purpose of hindering coagulation and favoring nourishment, the reflex dilatation of merely the efferent vessels and especially of the veins in their capillary portions appears to suffice. The artificial congestions of Bier's treatment produces a prophylactic dilatation of the veins, so to speak, since the natural congestion does not appear until the time of greatest danger when it is often too late. By these measures the animal succeeds in walling off the focus of inflammation from the healthy area first by a round-celled infiltration and then by granulation tissue, both of which processes are favorably influenced by the increased amount of blood. It is then no longer possible for the bacteria to destroy healthy tissue since this is now protected by the granulation tissue. At the same time the culture medium is withdrawn from the bacteria and they must then starve.

3. Absorbing Action of Hyperæmia.—Bier first showed that the active hyperæmia (*e. g.*, hot air), when not employed too long, improved absorption very much. If used for 8 to 10 hours, however, it had the opposite effect, *i. e.*, œdema. The

promotion of absorbing power by active hyperæmia agrees with our present knowledge concerning the method of absorption when at its best. We know that almost all absorption of fluids and of substances soluble in water takes place through the blood capillaries and not as we have often supposed through the lymphatics.

Klapp experimented with milk sugar, which, according to Voit, after being injected subcutaneously, is completely excreted in the urine and can be demonstrated quantitatively in this by means of the polariscope. He ligated the thoracic duct and the right lymphatic duct in a dog and thus closed all lymph channels which could carry to the venous system any of the sugar which he injected into the abdominal cavity. In spite of this all of the sugar again appeared in the urine as quickly as it had done in the control experiments a few days before with the same animal while the lymph channels were still normal. The lymphatics thus hold a very subordinate position in the absorption of water, salts and substances soluble in water. Von Recklinghausen has proved just as conclusively that small-formed or insoluble constituents (milk, emulsion, blood, cobalt, Indian ink) are taken up through the lymphatics of the abdomen. Wölfer experimented with potassium ferricyanide in order to show the influence of hyperæmia upon absorption. The solution was dropped on wounds of a limb previously deprived of blood, which was then allowed to flow. In this way the reagent could be demonstrated in the urine in one-third of the time required where the limb was not deprived of blood beforehand. As is known, a great arterial (so-called relative) hyperæmia appears after the artificial anæmia. This would go to show that arterial hyperæmia hastens very markedly the absorption of substances soluble in water. Klapp performed experiments with milk sugar and found that its absorption was hastened by hot air apparatus.

4. Dissolving Action of Hyperæmia.—In those diseases, where we have employed hyperæmic methods successfully, we seldom have to deal with fluids or with soluble compounds, but

generally with solid substances, which must finally fail to be absorbed. There is no doubt but that the solution of pathological solid material may be brought about by hyperæmic methods. In one patient, thick nodes, easily seen and palpated on the extensor tendons of the fingers, remained as a sequel of gonorrhœa. These quickly disappeared under obstructive hyperæmia and treatment by hot air. Bier recalls in this connection the fact that from ancient times the so-called counter-irritants and de-vulsives, or, as he interprets them, hyperæmic methods, have been used for the purpose of dissolving. This action has sometimes been well referred to as a softening or breaking up of the infiltrated area. It is undeniable, that inflammations, especially purulent inflammations, have a tissue-dissolving action. This has been attributed especially to the pus corpuscles. The above-described similar actions of pure hyperæmic methods, however, would apparently indicate that the mere inflammatory hyperæmia likewise plays a rôle here. Bier recalls that the cicatrices of the vagina, which are so bad that they would hinder delivery if they remained unchanged, are so softened during pregnancy that they become extensible and birth of the child is then possible without difficulty. In this process, however, there is no supuration and the laxity has been brought about only by the immense hyperæmia which arises in all portions of the uterus and vagina during pregnancy. Connective tissue growths and cicatrices apparently become softer, more flexible and more extensible in consequence of serous infiltration. Buchner has recently attributed constructive (assimilating) and destructive (disassimilating) substances to all the cells of the body. The destructive substances are said to be given off from the cells as dissolving and digesting juices (enzymes) to the blood serum which thus acquires this action. The constructive substances are said to remain attached to the cells. According to Buchner the destructive substances (digestive compounds or enzymes) dissolve all foreign materials.

5. Nourishing Action of Hyperæmia.—That hyperæmia as such has a nourishing action, is a very old assertion. First of

all this has been claimed for the so-called functional hypertrophy. Two questions will thus arise: (a) Can we, by hyperæmia, bring our distant body tissues into a condition of over-nourishment and can we thus influence the physiological growth? (b) Can we hasten or stimulate the regeneration of tissue by hyperæmia?

(a) Influence of hyperæmia on the nourishment of distant parts of the body and on physiological growth. Hyperæmia, either active or passive, doubtless leads to a lively growth of the covering epithelial structures. For example, it is known that in summer, when the skin contains more blood than in the winter, the hair and nails grow faster. One sees also hypertrophis epithelial thickenings and an increased growth of hair near chronic ulcers, which continue to be hyperæmic. Experimentally the spur of a cock was grafted in the richly vascular tissue of its comb and thus grew to an enormous size. On the other hand, the dissecting or penetrating glandular epithelium does not hypertrophy during hyperæmia, for example, in congestion of the liver or kidneys. Chronic congestion of the blood vessels or still more frequently lymphatic congestion and chronic or often repeated inflammations lead to thickenings of the skin, the so-called elephantiasis. Von Langenbeck summarized his conclusions concerning the influence of hyperæmia on the growth of the bones in length and thickness under the following three statements:

1. Pathological causes, which produce irritation and hyperæmia of the osseous tissue, as long as osseous growth continues, bring about an increase in the length as well as in the thickness of the bone.

2. The increased growth in length occurs chiefly in the diseased bone, but may also be observed in a healthy bone of the same extremity.

3. The bone lengthened by premature growth retains its dimensions throughout life. A subsequent decrease in length due to absorption does not take place.

Roux is correct when he states that only the organs with passive functions (connective tissue and covering epithelium) hypertrophy through an increase of the supply of nourishment without further irritation. On the other hand, organs with active functions (muscles, nerves, secreting epithelium) never do this.

(b) Influence of hyperæmia on regeneration. Since the experiments of Ambroise Pari, of Von Dumreicher, of Nicoladoni, of Helferich, and of Thomas, we know that delayed callus formation is hastened and strengthened very greatly by introducing an artificial venous hyperæmia. Liek found that punctured wounds of the rabbit's ear healed very much more quickly when at the same time the sympathicus was cut through or when the highest cervical ganglion was removed. Pinzo devised an ingenious apparatus in which he could keep the temperature of one leg of a rabbit almost constantly at about $+38^{\circ}$, and the temperature of another leg at $+10^{\circ}$. In another test he demonstrated the influence of this apparatus on the healing of the bone fractures of the ulna. Here the difference was unusually marked. While scarcely the beginning of a regeneration process could be noticed on the cool side after seven or eight days, the fracture on the warmed side was already firmly united by callus, which, as the microscope showed, was almost completely formed.

Bier now asks which kind of hyperæmia best supports the upbuilding and regeneration of the tissue, and concludes that functional, active hyperæmia would probably be better for this purpose than the passive.

Hyperæmic methods have been long used to favor regeneration. Warmth in the form of warm, moist applications, poultices, etc., have been used to stimulate weak granulations. Under the influence of vaporization the demarkation and correction proceed very rapidly even in deep ulcers caused by fire or cautery. In this direction Nature can sometimes overshoot the mark as we may see rather frequently in veterinary medicine, for example, in changing the bandage after operations for fistula of

the withers or of the ligamentum nuchæ, contused wounds of the fetlock joint and carpus, etc. The moist warm application here gives off the profuse secretion of the wound to the bandage. One must often be surprised at the large growing granulations appearing in a short time and paving the way for the normal growth of granulation tissue.

In a special part of his treatise Bier remarks that we would expect obstructive hyperæmia like all other therapeutic measures to call forth reactions of various strengths in different individuals and that the same irritation which would be weaker for some would be much stronger in other cases. This must be constantly borne in mind when we employ treatment against disease. The degree of hyperæmia and the length of time it is to be continued must be established by experience in the different pathological conditions.

The indications for the employment of obstructive hyperæmia are rather numerous and are constantly increasing. Tuberculosis of the joints was the first disease in which Bier used this treatment.

It first occurred to him to employ hyperæmia against tuberculosis after noting the following observations of the older physicians: Farre and Travers in 1815 and Louis in 1826 remarked on the frequency of pulmonary stenosis and tuberculosis of the lungs in the same subject and explained this by the great anæmia of the lungs brought about by the heart lesion. Frerichs in 1853 made the statement that tuberculosis of the lungs is the usual termination of diseases of the pulmonary artery. Conversely, Rokitsansky in 1838 established the fact that in congestion of the lungs, in case of a heart lesion as well as in curvature of the spine in the thoracic region, tuberculosis of the lungs is very rare.

Obstructive hyperæmia has also been used successfully in tuberculosis of the testicle and in acute and subacute arthritis of a gonorrhœal nature, as well as in acute articular rheumatism, in severe puerperal inflammations of the knee joint and in traumatic

arthritic with considerable discharge and suppuration of large joints. It has also been employed with good results in facial erysipelas, in phlegmon of the tendon sheaths, in chronic stiffening of the joints, in neuralgia, and in acute osteomyelitis. paronychia, phlegmon of the hand, furuncle, carbuncle and infected wounds may also be treated with success by obstructive hyperæmia. In abscesses of the oral cavity, in inflammatory diseases of the tonsils and in chronic angina, the cupping apparatus is very valuable. Satisfactory results have been reported also with senile gangrene, wherein the sudden disappearance of the terrible pain, the rapid cleaning up of the wounds and the appearance of healthy granulation tissue are all very evident. Especially good results are obtained in suppurative inflammations of the mammary glands.

The especially praiseworthy advantages of the treatment by obstructive hyperæmia are the following: 1. Large painful incisions are done away with. 2. The painful tampon is no longer necessary. 3. Severe disturbances of motion in affections of the joints and tendon sheaths are avoided. 4. The time of treatment is usually shortened. 5. No unsightly scars are left, since large incisions are unnecessary:

We first tried obstructive hyperæmia in six cases of puncture of the coronet:

1. A six-year-old brown mare (Case No. 454-H) was brought to the clinic on February 15, 1905, with the history that she had injured the upper side of the coronet on the left hind foot in getting up on the day before and since then had been lame. The lameness was very pronounced. On examination there was found a laceration of the tissue, 2 cm. long and 1 cm. wide, somewhat inwardly from the middle line beginning on the coronet and extending up to the articular line of the pastern joint, from which synovial fluid was running out, so that the diagnosis of contusion with opening of the pastern joint was made. After removing the hair from the edges the wound was disinfected, iodoform was applied, and the pastern was

bandaged. Temperature, 38.1°C . On the second day of treatment the appetite failed, the temperature rose in the forenoon to 38.3°C ., with pulse of 54 and respiration 14, and in the afternoon the temperature went to 38.5°C ., the pulse to 60 and the respiration to 18. The foot rested on the point of the toe only. The patient performed slight flexion and extension in the contracted limb as one usually observes in suppurative inflammations of the larger joints and tendon sheaths. From the second to the tenth day of the treatment the temperature varied from 38.4 up to 39.0 , the pulse remained 60 and the respiration at 18. She ate the smallest possible amount of food. During this period the bandage was changed twice, at which times only a small amount of wound secretion mixed with synovial fluid was seen. Balsam of Peru was applied with the new bandages. On the tenth day for the first time the obstructive hyperæmia bandage was applied directly below the hock joint for ten hours. Likewise on the eleventh and twelfth days the bandage was worn for ten hours, on the thirteenth day for five hours only. During this time the temperature never went above 38.0 , the pulse remained at 60, the respiration at 16. The appetite was slight. The animal could put more weight on the limb at times. On the sixteenth and seventeenth days the obstructive bandage was applied for eight hours, and on the eighteenth for nine hours. Following this it was left off, after having been applied for a total of sixty hours. A rather severe, hot œdema was thus attained. A really favorable influence on the local lesion was not manifest. From the twenty-first day on the weight was borne on the leg better and the general symptoms were improved. On the thirty-first day of treatment the wound was healed. The horse was walked about. Thirty-six days after her admission she left the hospital. At this time she had a moderate swelling above the coronet but was not lame.

2. On February 21, 1905, an eight-year-old gelding (Case No. 517H) was brought to the clinic with the history that he had been lame for several days. At rest, the horse held the right hind leg flexed upward or touched merely the toe of the

horeshoe to the floor. The leg was moderately swollen up to the fetlock joint. Upon local examination there was found in the middle of the coronet a laceration of the tissue 1 cm. long with bruised edges. From the opening came a yellow, tenacious fluid full of flakes. The temperature of the animal was 39.0°C., the pulse 54, respiration 24. The horse would lie down frequently. Diagnosis, puncture of the coronet (penetrating wound of the coffin joint). Treatment: A semi-lunar excision of the horn corresponding to the injury together with antiseptic bandaging. After removal of the bandage on the fourth day thereafter there was present a slough 2 cm. in diameter in consequence of necrosis of the edges of the wound. The slight temperature persisted as well as the disinclination to rest weight on the injured limb. The obstructive bandage was applied for ten hours. On the fifth day of treatment it was applied for six hours; on the sixth day, seven hours; on the seventh day, four hours; on the eighth day, nine and half; and on the ninth day, eight hours; altogether forty-four and a half hours. During the first days of the obstructive hyperæmia a greater secretion of the wound was noticeable, as is the case rather frequently with this method of treatment. A favorable influence on the body temperature could not be proven. After the application of the badage the horse would usually raise his leg and then lie down. Hot oedema, such as is desired, could not be attained. For this reason on the ninth day of treatment the obstructive hyperæmia was abandoned. When the bandage was changed on the tenth day a loose piece of the pyramidal process of the coffin bone was lost. Decubitus sores appeared in several places. The body temperature varied between 37.8 and 38.5. The owner took the animal away on the twelfth day, since a complete cure of the condition could not be promised.

3. An eight-year-old heavy draught gelding, of a fox-red color (Case No. 695-H), was admitted to the hospital on March 10, 1905, with the history that several days previously the left forefoot had been injured on the coronet where the toe becomes continuous with the lateral wall. At this place there was a

granulating wound $2\frac{1}{2}$ cm. in diameter and a corresponding loosening of the coronary band 5 cm. long. While standing at rest the animal placed no weight on the injured limb. While walking he showed a high degree of lameness. After taking off the horseshoe, we bathed the foot in creolin and then removed a corresponding semi-lunar piece of the horny wall. An anti-septic bandage was next applied. I wished to study the effect of obstructive hyperæmia on the very great lameness. After the application of the obstructive bandage on the forearm above the chestnut the horse began to sweat and become restless. Temperature 39.0, pulse 72, respiration 24. The bandage was seemingly not tighter than was usual in other cases. After four hours the bandage was removed, whereupon the horse became quiet. No other cause for the restlessness of the horse could be made out. Further applications of the obstructive bandage were not carried out so that the case could not be used to demonstrate the value of this treatment in the horse. The case is of interest only because of the fact that weight was well borne on the limb as early as the third day of treatment. On the twenty-sixth day the patient was discharged without any lameness and with a small granulating wound.

4. A dark, fox-colored mare, six years old (Case No. 2016-H) was admitted to the clinic with merely the history of going lame in the left forefoot fourteen days previously. On the coronet of the toe of the left forefoot there was granulating slough covered with pus about the size of a twenty-five-cent piece adjoining a subcoronary phlegmon. The adjacent swelling extended as high as up as the carpal joint. The animal was very lame. Temperature 39.2, pulse 60, respiration 24. The wound was given antiseptic treatment. On the day of admittance the elastic bandage was applied above the chestnut for seven hours. On the second day the bandage remained in place nine hours. The temperature at this time was 38.7°C . The weight was borne better on the affected limb. On the third day there was no fever, the leg was swollen up to the elastic bandage, but bore weight better and the appetite was good. The bandage

remained in place nine hours. From the fourth to the sixth days obstructive hyperæmia was maintained for ten hours daily. This made a total of fifty-five hours. Whenever the bandage was changed it was necessary to douche or irrigate the growing granulations. The patient was discharged on the sixteenth day with good function of the limb. The wound was already in the process of scar formation.

5. A seven-year-old chestnut brown gelding (Case No. 2596-H) was brought to the clinic on July 28, 1905, because of his great lameness in the right hindfoot. Somewhat medially or inwardly from the middle of the coronet of the toe was a fresh, triangular wound caused by a calk. A stream of clear synovial fluid was seen when the foot was raised and placed on the shoeing stool. Penetrating wound of the coffin joint in consequence of puncture of the coronet was diagnosed. After disinfecting with creolin, an antiseptic bandage was applied. Aside from a slight acceleration of the pulse up to 48 per minute and the lameness there were no symptoms. On the second day of treatment the temperature was 38.6, the pulse was 48 and respiration 18. The appetite was fair. The weight was badly borne on the affected limb. The elastic bandage was worn for ten hours directly below the hock joint. On the third day as well as on the fourth the bandage remained in place for ten hours. The temperature remained a few tenths above 38.0, the appetite was good and the weight was borne better on the affected limb. On account of bearing weight better on the limb and the absence of fever the hyperæmia was now discontinued, having been in use for thirty hours altogether. In this instance the obstructive bandage was always applied at the same place and not changed at each time as is usually done (*i. e.*, one day on the metacarpus, and the next on the forearm or leg as the case may be). The bandage was worn in the same place on three consecutive days for ten hours each. Besides this it is possible that it was too tight. Whatever the cause the effect was very evident. There was present a circular, superficial necrosis of the skin as wide as the bandage. It had the same appearance as does skin on

which one has used too strong a blister. The further course of the lesion was so favorable that the horse was ready for service and was returned to the owner on the twenty-fifth day of treatment. This was certainly an unusual result in a penetrating wound of the coffin joint inflicted under uncleanly conditions. It is questionable, however, whether this can be attributed to the obstructive hyperæmia. If we bear in mind that the wound could not have been primarily infected and that it was immediately treated, we may explain the result merely by primary healing of the capsular ligament of the joint.

6. Light brown mare, eight years old, was listed on December 15, 1905, as Case No. 4262-H. Four days previously the horse had injured the coronet of the right hind foot with the left hind foot. The temperature was 40.5, pulse 56, and respiration 24. While standing still the horse rested only the toe on the floor. She was very lame when walked about. There was a laceration of the tissue 3.2 cm. in diameter where the coronet of the toe becomes continuous with that of the inner wall. From this came a suppurative exudate mixed with synovial fluid. The edges of the wound were badly bruised. The diagnosis was puncture of the coronet with opening of the capsule of the coffin joint. A semi-lunar piece of horn was removed corresponding to the contused wound which was disinfected and dressed with Balsam of Peru. On the second day of treatment the obstructive bandage was applied for ten hours above the hock joint. On the third day of treatment for eleven hours, on the fourth for nine hours, and on the fifth for ten hours (forty hours altogether). The leg swelled up to the hock joint. The swelling was perhaps to be partly accounted for by the œdema caused by the obstructive bandage. The weight continued to be badly borne on that leg. The horse was lying down a good deal of the time. The appetite was poor. The body temperature varied between 39.4 and 40.2. Upon changing the bandage necrotic portions of tissue were repeatedly discovered. On the fifth day of treatment a fluctuating swelling was found round about the coronet.

On the sixth day of treatment spontaneous rupture of this swelling occurred in several places (suppurative periarthrititis). The horse was pronounced incurable and was taken away by her owner.

Obstructive hyperæmia was also tried in seven cases of phlegmon of tendon sheaths.

1. A thirteen-year-old black mare entered the hospital on May 23, 1905 (Case No. 1636-H), with the history that she had acquired an injury in the right carpus caused by a violent fall. In the distal half of the dorsal surface of the right carpal joint there was a slough in the skin 3 cm. in diameter, covered with yellowish, granular masses, after the removal of which the tendon of the extensor carpi radialis muscle was exposed. The tendon sheath was opened. The edges of the lesion were jagged and bruised. The neighboring border, $1\frac{1}{2}$ cm. broad, was excoriated. Lameness was very pronounced. The temperature was 38.5, pulse 54, respiration 20. Disinfection was by three per cent. creolin solution. An antiseptic bandage was then applied. During the next few days a slight fever was present and weight was borne better on the affected leg. On the fifth day of treatment a few necrosed pieces of tissue were met with when the bandage was changed. Synovial fluid was mixed with the secretion of the wound. From the twelfth to the seventeenth day open wound treatment was used. Tannoform was dusted on the granulations, which were growing somewhat. Weight was well borne on the limb. On the eighteenth day of treatment it was noted that weight was badly borne on the leg, temperature 39, pulse 60, respiration 18; synovial fluid was again seen and the surrounding swelling extended from the coronet half way up the forearm. The leg was packed from the hoof to above the carpal joint with compresses saturated with acetic acid clay. Improvement followed. On the twenty-third day of treatment, however, a new inflammation of the plegmonous process appeared. Moderate fever was present and weight was badly borne on the leg. On the following day the obstructive bandage was applied below the elbow joint for nine hours and for ten hours each on the

three next days (in all, 39 hours). The other part of the treatment was continued. No improvement was noted. On the contrary, an encroachment of the suppurative process on to the distended joint of the carpus was seen. On the thirtieth day after the admittance of the patient the owner had her destroyed. No effect of the obstructive hyperæmia could be noticed in this case. Of course this was not employed until the twenty-fourth day of treatment; the process was at this time far advanced and the bandage had to be applied to a place already greatly swollen with œdema.

2. A four-year-old black stallion, entered June 9, 1905 (Case No. 1880-H), has been lame for five weeks. Several days before this pus had appeared from a swelling at the fetlock. Upon examination great lameness was found in the right hind leg. An extensive moderate swelling, greatest at the fetlock, reached as far upward as the hock joint. On the medial and lateral surfaces somewhat above and toward the plantar side of the sesamoid bones there were small openings from which pus and synovial fluid were coming. Temperature 39.3, pulse 60, respiration 16. Diagnosed as a suppurative inflammation of the tendon sheath. The local treatment was intentionally confined merely to superficial disinfection and the application of a tenoform bandage. On the third day of treatment the temperature was 40.4; in the afternoon 39.6. The elastic bandage was applied above the hock joint for four hours. On the fourth day the horse bore weight on the leg very badly. The bandage remained in place nine hours. On the fifth day weight was borne somewhat better on the leg and the bandage remained in place for ten hours. On the sixth day of treatment a larger amount of thin pus mixed with synovial fluid broke through in a new place on the lateral surface. From this time on the elastic bandage was applied ten hours daily for a week. Weight was borne better on the leg. On the eleventh day all of the places where pus had broken through were healed. From the fifteenth day on the horse was walked about and warm moist bandages were applied. On the seventeenth day the patient was discharged with a slight thickening in the region of the tendon

sheath but without lameness. The case took such a favorable and rapid course as is seldom seen.

3. A twelve-year-old gray gelding entered on June 24, 1905, as Case No. 2086-H. This horse had injured himself in the right carpal joint by a violent fall on the day previous. Examination revealed an extensive swelling of the limb above the carpal joint. On the anterior surface of the carpus there was a circular wound 3 cm. in diameter with a loss of the tissue, so that the tendon of the extensor carpi radialis muscle was laid bare. Surrounding this wound there was a zone of abrasion about 1 cm. broad. The wound was contaminated with dirt from the street. The animal walked with moderate lameness. No general symptoms. A moist bandage of Burrow's solution was applied. Upon changing the bandage on the third day synovial fluid was visible. The elastic bandage was placed above the chestnut for seven hours. On the fourth day it was applied for eleven hours, and from the fifth to the eighth ten hours daily. In changing the bandage on the sixth day a fine granulating surface was to be seen, while synovial fluid was present only in very small amount. On the ninth day the bandage remained in place seven hours, after which day it was no longer used. The elastic bandage seemed to increase the œdema already present. Fine granulations, weight well borne on leg, and antiseptic dry bandage. From the eleventh day the open treatment was employed. No fever from this time on. On the 17th day a perceptible lessening of the defect was observed and granulations on the level of the skin. On the 29th day the subject left the clinic entirely well.

4. Ten-year-old gelding. Admitted August 10, 1905. Case No. 2797-H. The one in charge of the horse said he had been injured at work by a piece of iron and had been very lame since. On the fetlock joint of the right hind foot was a contused wound 3 cm. long running crosswise extending as far as the border of the tendons and clear to the bone. Considerable synovial fluid was coming from the wound, lameness marked, temperature 38.4, pulse 48, respiration 14. The wound was protected by an anti-

septic bandage, and on the first day the elastic bandage was applied below the hock joint for 11 hours. Second day, bandaged for 10 hours. Weight borne badly on leg. On the third day the bandage was left on for 10 hours, during which period better symptoms were observed. Temperature 38.6. On the fourth day the condition was the same. On the fifth day bandage was on 10 hours. Temperature 39. Weight borne worse. From the 6th to the 14th day inclusive the elastic bandage was applied daily for 10 hours, changing the position from below to above the hock joint and back again. During this time there was some fever rising at times to 39.7. Appetite variable; the leg bore weight badly throughout. During the repeated bandaging of the leg synovial fluid was always visible and the extremity was swollen extensively as high as the hock. In all the bandage was retained 141 hours. Although on the third and fourth days a better bearing of weight was present. No improvement could be perceived later so the obstructive treatment was discontinued. From the 16th day on the condition continued afebrile and weight was gradually borne better on the leg. The presence of synovial fluid was no longer observed. The treatment consisted in the daily application for half an hour of a warm foot-bath containing 1% creolin followed by an antiseptic bandage. On the 20th day the healing of the wound was well begun. At this time the horse began to move about. Before this it had been difficult to make him move. On the 27th day a circular, superficial, dried layer of skin was removed from below the hock joint corresponding in width to the elastic bandage. After several days this place showed considerable reproduction of epidermis. On the 33d day the horse was taken from treatment, still moderately lame, but with the wound healed.

5. Ten-year-old mare, admitted August 12, 1905 (Case No. 2816-H). It was reported that the horse had become entangled by its hind foot in a chain some four weeks before. Three days previous to admittance the condition had become worse. The lameness was very marked, the horse barely touching the ground with the tip of its shoe, and for the most part holding its foot

entirely off the ground. Extensive swelling present from the coronet to the centre of the metatarsus. The skin over the fetlock flexor was greatly reddened, the horse had a white fetlock, and from the outer surface of the fetlock and running into the flexor of the fetlock was seen a granulating wound 8 cm. long and 1 cm. wide. Corresponding to the lateral border of the flexor tendons was a fistulous opening the size of a pea, from which was coming a small amount of opaque synovia. On pressure over the tensely filled tendon sheath of the fetlock a greater amount of synovial was evacuated filled with flakes. At the same time the horse gave the liveliest evidence of intense pain. The temperature could not be taken in rectum. Pulse 48, respiration 24. The treatment consisted in merely the application of anti-septic bandages. On the first day the elastic bandage was applied 10 hours. The same on the second. A decided, warm oedema of the leg could not be brought about. The appetite was less; the weight-bearing power of the leg was the same as the day before. On the third day the bandage was retained 10 hours. The impression at this time was that the animal felt better in that attempts were made to use the foot at times. This case, which was especially adapted for experiment was lost to the clinic since the owner had the animal removed on the 4th day.

6. Black fourteen-year-old gelding, admitted August 14, 1905 (Case No. 2839-H). The horse was very lame in the right hind foot from a wound in the fetlock joint caused by a broken-off piece of shaft running into this. In the flexor of the fetlock more to the medial side was a fresh wound 5 cm. long, spreading open 3 cm., running diagonally, laying bare the flexor tendons and giving rise to considerable synovial fluid. In consideration of the contused edges two things had to be accomplished, aside from suturing the edges, *i. e.*, disinfection of the wound and anti-septic dressing. On the first day obstructive treatment was given 10 hours. On the second day the temperature rose to 38.7 which was the only instance during treatment. The elastic bandage was applied daily for 10 hours till the 12th day, the day of dismissal,

in all, 120 hours. Weight borne fairly well on the leg and course of wound favorable at time of discharge. A moderate degree of lameness was still present upon walking, but weight was borne well while standing at rest.

7. Nine-year-old gelding, admitted October 5, 1905 (Case No. 3490-H). There had been an extreme lameness in the left hind leg for a long time. Just above the outer lateral wall of the coronet was a swelling the size of a man's fist pierced by two fistulous canals which extended to the sheaths of the fetlock tendons. There was considerable swelling up to the hock joint. Temperature 39.2 to 40.7, pulse 76, respiration 24. In connection with the usual treatment the obstructive process was employed 10 hours a day from the 3d to the 6th day inclusive. On the 6th day was noticed in the place of application of the bandage a dry, parchment-like quality of the skin. A spreading gangrenous condition came on, followed by suppuration of the tendon sheath and the tissues adjacent, so that the horse had to be killed as incurable. There was no effect from the treatment, this being an exceedingly severe case.

Aside from these cases the treatment was used in the following:

1. Case of cellulitis of the fetlock from a grazing wound. The horse was sent from the clinic cured at the end of 14 days. A positive, constantly favorable, effect from the obstructive treatment could not be ascertained.

2. A very lame case resulting from stepping on a nail with the left fore foot four days previously. Temperature 39.4 to 40.6. No fall of temperature followed the obstructive treatment. No improvement of the lameness from reduction of the pain was observed. On the ninth day the horse died. On the section the following was seen: Pyogenic infection of the coffin-joint, necrosis of the flexor tendons of the coffin bone with rupture of them at the level of the navicular bone, necrosis of the flexor tendons of the os coronæ and rupture of these above the os coronæ. Septic cellulitis up to the carpal joints, pus organisms appearing.

3. Case of purulent, gangrenous inflammation of the sensitive foot (stone-gall) which led to partial necrosis of the sensitive wall and the cartilage of the hoof. The obstructive treatment was employed for a total of 158 hours. At first about 8 hours daily and then later several times a day for about 2 hours at a time. In spite of the treatment the inflammatory process went on to the sensitive frog. No improvement in bearing weight on the leg. The horse was finally killed as soon as sloughing of the hoof began.

Under direction of the chief of the clinic the treatment was employed in several inflammatory cases not of infectious nature:

1. In two cases of acute serous tendo-vaginitis of the fetlock tendon sheaths.

(a) This case showed swelling of the tendon sheaths of the fetlock, tender to pressure and with elevated temperature. A moderate degree of lameness was present upon walking. On the first day the obstructive treatment was employed 9 hours, and for the next 6 days 7 hours daily. Considerable œdema and temperature was observed as a result of this. During the treatment weight bearing was good, the horse using the fetlock better at that time than in the intervals between treatments. On the 8th day the case was dismissed. No lameness appeared on walking, a slight limp appearing on trotting. In this case the treatment seemed to have a good effect.

(b) In a similar case treated with the obstructive bandage for 12 days only. A moderate decrease in the lameness could be noticed. The effect was not certain.

2. Three cases of inflammatory thickening of the flexor tendons and their sheaths.

(a) Inflammatory relapse in a case of thickened tendon of the flexor sublimus digitorum muscle of right fore foot. Animal was under treatment 19 days. For 9 days the elastic bandage was applied for about 8 hours each. Decrease of lameness. Value uncertain.

(b) Similar to (a). Inflammatory thickening of the flexor tendon and its sheath of the left fore foot. For 12 days the

elastic bandage was applied 8 hours daily. A considerable cylindrical swelling appeared, especially of the inner common digital vein. Hot œdema occurred up to the carpal joint. Effect doubtful.

(c) Inflammatory thickening of the flexor tendons and their sheaths of both fore legs and peri-arthritis of the right carpus. On the first day the bandage was maintained 7 hours. On the second day the bandage was applied on both fore legs with the accustomed amount of pressure. After a time the horse became restless, pawing with the forelegs frequently, and soon broke into a sweat so that the bandage had to be removed after four hours' application. The horse then became quiet. The animal was kept for a while longer in the hospital with no result.

3. Case of Exostosis and Periostic on the lateral surface of the left metacarpus. Moderate degree of lameness. This case is of no value, but is interesting from the fact that the animal tried in every way to rid himself of the bandage. The attendant observed that the horse absolutely would not wear it. By pawing, stamping and nibbling, the horse tried to rid himself of the bandage. Being tied short, he broke loose and tore it off with his teeth. Treatment was therefore discontinued.

4. Newfoundland dog with Gonitis destruens (inflammation of the knee. The superficial veins were considerable swollen. The bandage frequently became loose on the thigh. With the bandage in place the dog did not attempt to rest weight on the foot. No results.

In looking over our observations with regard to the significance and merit of the Bier's treatment in the cure of animals, I came to the following conclusions:

I. The suction devices can be used best in cases of small animals suffering from affections of the paws. In case of inflammation of the claw-matrix, or a cellulitis in the lower portions of the extremity after penetrating wounds, etc., a cylinder-shaped suction apparatus could be employed. During the treatment the animal has to be securely tied on a table adapted to this purpose. On this point I have no cases of my own to report. In the larger

animals this apparatus can hardly be used either on the extremities or trunk. In that case one can have made from unbreakable material a kind of boot (Junod's boot) which can be fitted to the leg by an India rubber rim. In any event there is a great deal of research to be done in the case of inflammatory processes of the hoof, peripheral joints and tendon sheaths.

II. The rubber tube or band can be used in any case to cause passive hyperæmia (according to Riedl, a layer of gauze should be interposed in the treatment of man), but the following difficulties arise:

(1) Many animals bear the bandage poorly even when not unusually tight. They paw and stamp and try to tear the bandage. Thus the bandage may become too loose or too tight. The animal may be kept from biting at the bandage by being tied short, but nothing can be done to prevent the stamping and pawing. Bier says that the bandage must not cause pain. Now the question arises as to whether the actions referred to above, when occurring, should be regarded as signs of pain or not. To many animals the bandage is merely vexatious without causing real pain. It is an unusual feeling (probably paræsthesia in some cases) which one can observe in otherwise applying a bandage to a horse. The majority bear it well.

(2) In two cases unfavorable signs occurred. The animals became restless, broke into a sweat and showed acceleration of the pulse and respiration. In these cases the bandage was apparently not tighter than usual. After removal of the bandage the horses again became quiet. It being necessary for the attending physician to keep close watch on the human subject during treatment, it is doubly necessary in veterinary practice. For, on the one hand, the bandage may by the movements of the animal become pushed to one side or too loose, or may again become too tight so as to cause not only gangrene of the skin but even serious injury to the parts below the bandage.

(3) The amount of pressure to be used cannot be absolutely designated. The degree of pressure must be made to suit the individual. That is very difficult in horses. I have used the plan

of inserting my left index finger under the bandage when it was buckled on and thus satisfy myself as to the tension. It is thus a matter of practice and experience as to how tight the bandage should be given case. For that reason I always apply the bandage myself. The pressure must vary in different cases according to the thickness of the hair, the skin itself and the development of tissues beneath the skin, or in whatever way individuals differ from each other.

In spite of all precautions there occurred several times an annular superficial necrosis of the skin in the place where the bandage was applied.

According to Danielson there may be used as regulators of the tension the pulse in the limb distally to the bandage, the red color and the warmth of the limb outside the inflamed area, which must be increased by the congestion. These may be made out by comparing the treated limb with the opposite one. If it is not possible to obtain the right tension at once remove the bandage and try it a second or third time. Bier desires a positively warm œdema since a cold œdema may be dangerous. It is possible in most cases to feel the pulse distally to the bandage. Nevertheless in case there is a considerable amount of œdema during the course of the disease or if there is a congestive œdema due directly to the bandage, it is difficult to find any pulsation of the artery *digitalis communis* so that one may be in doubt as to whether or not the bandage is too tight.

In establishing the desired "fiery red," we meet with another difficulty in animals. The change of color cannot be seen on account of the pigmentation of the skin so there must necessarily be some area on the limb under treatment which is free from pigment if we are to use this sign. Better success is obtained by observing the greater fullness of the superficial veins. The increase of temperature in the part can be relied on and is at the same time the only safe guide in the treatment of horses. It is not always possible even by repeated bandagings to obtain a warm œdema. In single cases there was no œdema at all; in

others no appreciable increase in temperature. However, Bier held that these cases were not suitable for his treatment since the inflammation had already passed the highest stage.

4. The choice of cases thus makes a great difference since quite frequently the severe cases, after being treated for a long time by other methods, had been sent to the hospital on account of the severity of the condition and at time when the inflammation had passed the highest stage and a subsequent general destruction of tissue had occurred. Naturally our clinic treated a great variety of cases; but in many instances it seemed that the treatment had been tried too late.

V. Bier's stipulation, that the bandage must be as far from the seat of trouble and as near as possible to the shoulder or pelvic girdle, is confronted by extreme difficulty in the case of the larger animals on account of their anatomical conformation. The humerus lies completely on the thorax, and the femur is closely joined to the pelvis and covered with great muscles so that application of a bandage or compress here is out of the question. On the foreleg the bandage cannot be applied higher than the elbow joint, and on the hind leg not higher than the upper third of the tibia.

Riedl has applied the bandage in case of human subjects, in the immediate vicinity of the seat of trouble and obtained favorable results, so it would appear that Bier's postulate need not be adhered to absolutely.

In treating animals it is impossible, as said before, to carry it out, although in dogs it can be very nearly accomplished since in them the bandage can be applied to the thigh and so include the knee in the treatment.

In one case (stonegall, Case 3) it appeared that the increased oedema hastened the loosening of the hoof from the matrix so that the way was prepared for sloughing of the hoof. Should further experiments show that this occurred more often in cases of suppuration in the navicular cushion, in subcoronary phlegmon, and especially in those cases affecting the hoof, then these af-

fections must be regarded as contra-indications for the obstructive treatment. But it is these very cases in which a safe method is desired.

I accomplished the treatment by means of an elastic bandage a metre and a half in length provided at both ends with a pair of tongs. After the bandage had been applied it was firmly secured by tying the thongs of one end to those of the other. Clamps may also be used. There is a great deal of wear on the bandage, and if one of the edges becomes torn it is impossible to prevent a complete break. The rubber bandage can be protected by one of cloth laid over it. Riedl says merely cloth bandages tightly drawn give very good service, so one need not use the expensive rubber bandage.

The location of the bandage must be changed. We placed it one day on the metacarpus, the next on the forearm above the chestnut, which latter holds the bandage upon the conical forearm. On the hind leg we applied it one day below the hock-joint, the next day at the middle of the tibia.

In summing up my experiences I would say :

The purulent inflammations of joints and tendon sheaths, and phlegmonous processes of the hoof, promise a very good field for this method.

The number of diseases which can be thus treated is less in veterinary practice than in human medicine. It happens that the greatest class (that of acute osteomyelitis of the bones of the extremities) falls almost completely without its sphere just as does gonorrheal arthritis, affections of the tonsils, abscesses in the oral cavity, carbuncles, etc. Although so limited in veterinary practice there is still great hope and expectation to be placed in this method.

The difficulties at present in veterinary practice are great, owing to the lack of technique. In any case we must not be restrained by these from proceeding in the right way.

Even if results have appeared in several of our cases, still the expectation has not been completely fulfilled.

It is acknowledged that we have not mastered the technique, and the choice of cases was not discriminating enough. Therefore it is to be expected that with the perfection and extension of our technique, more favorable results will be seen and that further experiments will be in order.

For the above reasons this method is limited to cases in which constant control is possible, and even then is attended by numerous difficulties. For country practice, ambulatory cases, and polyclinics, it is at present impossible.

It can never attain the efficiency and extent which it already has shown in human medicine.

The saneness and merit of the method cannot be doubted, as is made clear in the exhaustive literature on the subject and as has been shown by the experiments here reported.

Those cases of experimental infection of laboratory animals and the effect of the obstructive treatment on them cannot be convincing evidence of success without cases of natural infection occurring in practice or under treatment at the clinic, because they are entirely different in nature. If this method according to Bier is to elevate the plane of veterinary knowledge by first building up its technique, then his monograph has an especial value for us, because he has given us well-founded explanations of the method of action of the derivatives, as we have seen in the first part of this treatise.

Bier believed that the action of the derivative depended in the first place on hyperæmia (congestion). To it also be ascribed the following properties:

1. A pain-relieving effect.
2. The power of destroying or weakening the bacterial action.
3. An absorbing effect.
4. A dissolvent action.
5. A nourishing action, especially favoring regeneration.

Since the derivative method plays so great a part in veterinary practice, we must be thankful for these well-founded explanations of this old, respected treatment.

Zschokke, in his splendid work on the action of the derivatives, maintained that the stimulus which the derivative set up was a nutritive and formative one in Virchow's sense, when he said: "The after-effects of the derivative consist, as I believe, in a stimulation of the cells in some way; by arousing nutrition, and stimulating formation." And again, "Where the healing process is a long one, and thus a considerable differentiation of fibroblasts is necessary (in tendons, ligaments, and bones), the retarded result is explained as follows: That the cells are stimulated and aroused, but that the regeneration of cells to the point of complete differentiation still requires an unusually long time." I agree with him, but do not like to completely deny the value and aid which the hyperæmia appears, according to Virchow, to give to the action of the derivatives. I believe the two views can be harmonized so that they both may stand.

Bayer and Eberlein both point repeatedly in their work in hydrothermo regulators to the significance which hyperæmia has as a favorable factor in different processes.

RIDING CLUBS IN KANSAS CITY.—Riding clubs are the "new thing" in Kansas City. Two quite large clubs have recently been organized, and there are a number under formation. It is a daily occurrence to see a cavalcade of 50 or 60 ladies and gentlemen coursing over the boulevards of the city. This renewal of an old-time means of pleasure and healthful exercise has stimulated an active demand for a high quality saddle horse, and the horse-dealers in that city are realizing a brisk business in all the better class of horses.

INCREASED FACILITIES AT MCKILLIP.—The contract has been let for the building of a new pathological laboratory for the McKillip Veterinary College. The laboratory will be 35x50 feet in size, well lighted and commodious in every respect. The equipment will be so arranged that both the pathological and the bacteriological laboratory work will be done in it. Orders have been placed for new equipment for these laboratory courses. Thirty new microscopes with one-twelfth objectives will be added to the supply of instruments now possessed by the college.—(*Journal McKillip V. C. Alumni Association.*)

AUTOMATIC METHOD OF ERADICATING ANIMAL TUBERCULOSIS.

BURTON ROGERS, D.V.M., Kansas State College, Manhattan, Kansas.

Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, shows in his last annual report issued in January of this year that about 430,000 tuberculous hogs were discovered by the federal inspectors during the fiscal year of 1907. Of this number about 64,000 were so badly affected with the disease that no part of them complied with the Pure Food Laws, and were therefore of necessity removed from our meat supply. The remainder were considered bad enough to condemn "parts" alone, and the "part" usually consists of the head and neck of the animal, averaging a loss of at least fifty cents each, besides making the rest of the meat of the animal come from one that could not be said to have come from an absolutely healthy animal. This 430,000 is an immense and sudden increase over the number of tuberculous hogs discovered in the fiscal report of 1906, and to one who was not conversant first hand with the history of U. S. inspection would at once conclude the disease had increased that much during the year. The real facts are that better methods are now in vogue in all the packing houses than were a few years ago, and furthermore it is uniformly so. The federal inspectors in Maine and St. Paul are now conducting their inspection by precisely the same methods and under practically the same favorable facilities as are the inspectors in San Francisco and New Orleans. Besides this a very large number of additional establishments now have inspection. As a result it is practically impossible for a tuberculous animal to pass by a federal inspector to-day. Formerly more or less numbers did, making comparisons of different years therefore of no value. While, of course, all authorities agree the disease is on the increase, the apparent increase in the government statistics are misleading and represent

sporadic gradual improvements of inspection methods and facilities, until the Act of June 30, 1906, which created like conditions everywhere. For instance, if a hog has any tuberculosis at all the filtering lymph glands of the head will show in more than 95% of the hogs, and about half of the tuberculous hogs have absolutely no other diseased parts except these glands. The writer had been inspecting heads in one city for about two years, when he was transferred to another city which had had federal inspection for several years, but no head inspection of hogs had ever been conducted. Was transferred after six months to another city where head inspection had been inaugurated only three months prior, and a transfer one year later to another city showed head inspection had been inaugurated still later. Some packers' natural arrangements offered poor light to observe lesions, and others better. At that time two packers might buy exactly the same hogs, and in one house every tuberculous hog be detected, and in the other less than half be observed even. So, not until June 30, 1908, will this country have reliable figures upon which to accurately base the increasing or decreasing percentage of the disease. But be that as it may, the important question confronting us in this progressively economical age is: Could tuberculous germs have been prevented from entering these 430,000 hogs setting up the disease in the varying degrees that caused the depreciation of all and the complete exclusion of 64,000 hogs?

Recent federal and state experiments show that tuberculous cattle, especially cows with pulmonary consumption, cough up germs into their mouths where they are subsequently swallowed (for who ever saw a cow spit or vomit) just like the cud. Some of these germs pass through the walls of the intestines into the blood vessels and from there to a new place in the cow's lungs. She harvests a crop of germs, but plants them again the same day. But the most of the germs pass out of the intestines with the manure or fæces. Experiments show that as many as 37,000,000 tuberculous germs can thus be passed out of one cow in one day. Any small particle may then contain an immense

number, and when dried may become a part of the dust that may later fall in the milk pail and reach the consumer.

Tuberculosis is an unpleasant subject and so are some of its important facts. Hogs find much nutrition in the faeces of cattle and consequently devour them greedily, and farmers take advantage of this fact and encourage it by turning hungry hogs into such environments. Because hogs have been removed from their natural, free, roaming conditions and been placed in small pens with lots to eat, they have deteriorated physically, and, taking on large quantities of fat, are to-day considered the most susceptible of all animals to tuberculous germs. Therefore, hogs associating with tuberculous cattle that are scattering tuberculous germs as above indicated can hardly help becoming more or less affected according to the number of germs given off, and therefore proportionate to the degree of dangerousness of the cow. Stopping right here for a moment, every intelligent reader could do some reasoning on the facts just given, and possibly evolve an automatic plan for locating the dangerous tuberculous animals.

On nearly every farm hogs and cattle associate in the same pens and pastures to a greater or less extent. Most hogs are ready for market within one year after birth. The bulk of hogs are slaughtered in packing houses having federal inspection, where every single hog is given two thorough examinations for tuberculosis. During the fiscal year 1907, 430,000 hogs were under contaminating conditions on the farms from which they came, and the milk and milk pails are exposed to the same dangerous conditions on these same farms. Assuming that these same farmers are raising an equal number of hogs this year, then 430,000 living hogs are at present exposed to the same contaminating conditions on these same farms and when marketed make up the bulk of another 430,000 tuberculous hogs. Under present conditions the federal inspector discovers a tuberculous hog, but has absolutely no idea where the hog originally came from, for all hogs look alike after the hair is removed and the head cut across.

REMEDY.

The enactment of a law, by which the U. S. Department of Agriculture shall purchase and in co-operation with the State Experiment Stations distribute metal tags to the farmers. The tags to bear either the name and address of the farmer or a systematic letter and number system in the numerator and denominator of a fraction, showing state, county, township and farm, $\frac{N\ 40}{15-435}$. If one wants to find anything in a book containing miscellaneous information, they know the pages are numbered and the information indexed. Tagged tuberculous hogs are an index to the dangerous tuberculous premises. These premises could then be controlled and the dangerous tuberculous animals eradicated. Within one year 430,000 less tuberculous hogs would come to market.

Any cow which will scatter tuberculous germs in sufficient numbers to affect associating hogs is a dangerous animal because she is scattering germs. General compulsory tuberculin testing is the method necessary to completely eradicate animal tuberculosis. On the other hand, compulsory tagging of hogs is the method of eradicating every dangerous tuberculous animal with which hogs associate. At any rate preliminary data would be secured concerning the extent and distribution and, therefore, approximate appropriation necessary to eradicate it. Blanks sent quarterly to the farmers as applications for tags to apply to animals born during the past quarter would give us a perpetual live stock census, besides the ownership tag.

There is just as much justice in selling live animals on their real merits as in making it compulsory that their products shall be so, and so only, sold. The government can carry out a law affecting the interstate centripetal channels of trade as well as the interstate centrifugal channels. If the nation and the states appropriate sums that are inadequate to compensate the owners for destruction of these tuberculous germ manufacturing animals, then it must seem a profitable investment for the packers of this country to co-operatively invest the remainder necessary

to completely eradicate every living tuberculous food animal, and therefore cease buying 430,000 tuberculous animals every year. But the greatest good will come to the people, for if every tuberculous animal would be eradicated it would solve the municipal and country meat and milk supply problem as far as tuberculosis, the greatest danger, is concerned. There is positively only one side to this question, for it is for the best interests of every one and is not antagonistic to a single soul on earth.

THE Senate has passed the bill to establish a "permanent bison range" on the Flathead Indian Reservation in Montana. This range is to be enclosed and become the home of the largest herd of the buffalo now in existence. The range contains 12,800 acres and the buffaloes numbered around 400 head at last accounts.

CRUELTY WOULD DEFEAT PURPOSES OF VIVISECTION.—In the course of an address on vivisection delivered before the newly-organized Woman's League of the State of New York held at the Waldorf-Astoria, May 16th, Dr. Simon Flexner, President of the Rockefeller Institute for Medical Research, is reported as saying:

"I am myself an experimenter on animals. As a professor in two universities I experimented on many animals, and as President of the Rockefeller Institute I have had the supervision of experiments on many more. In twenty years' experience I have never seen one animal subjected to cruelty. If cruelty were necessary I should regret it, but I should admit it. *Cruelty would defeat our purposes by destroying the precision which is so essential to success.* Some of the most important advances in science have grown out of experiments of an academic character whose ultimate end could not be foreseen.

In meningitis cases the lives of ten persons have been saved for every monkey sacrificed in experiment. No legislative body can frame measures that will not hamper the progress. The tuberculosis problem has been practically solved. Tumors and cancers will come next. Rats and mice have these diseases in a degree hardly different from that found in human beings and can be experimented upon with advantage."

OLD WASH AND THE NERVOUS GOATS.*

"I never had much use for goats," said Old Wash the other night, "an' I got less use for 'em now than ever. They may be as good to eat as sheep to some people, but when I hears a man say dat, ef he's white, I looks for his head to be all cymling and his foots all giblets, an' ef he's black I looks for blue gums an' wropped hair. Ever' now an' den, dey gits up a goat craze, in de South an' dese city men whut edits farm papers in cities tells whut a pow'ful lot uv money dey is in goats. After tellin' how dey eats up ever'thing nuthin' else will tetch—not even barrin' a carryon cro'—an' can live an' prosper on a dry spot so nigh de wicked place dat nuthin' else cu'd live dere wid col' feet unless dey walked on stilts, dey den proceeds to tell how fast dey can prop-a-gait, which is a big word dey uses to tell how soon an' nachully a little sissy^o kid goat gits to be a nanny.

"It ain't often I drops into poetry, but heah is de way I figures it out:

Two little goatses, out in de sno'
Dey gits married an' den dar is fo'.
Fo' little goatses longin' to mate,
Bare is de larder, but soon dar is eight.
Eight little goatses, weeds, an' no mo'—
Weeds is for true love an' now twenty-fo'.
Twenty-fo' goatses climbin' de gate,
Ever'whar dey oughtn't be—now eighty-eight.
Eighty-eight goatses, all in de corn,
Still studyin' 'rithmetic—two hundred's born.
Two hundred goatses on house top an' tree—
Dey drops six hundred by de rule uv three!
Six hundred goatses, locustin' de land,
Living on lizards, love-knots and sand,
But sand is deir manna—dey marry ag'in,
Now sixteen million, nine hundred an' ten!

*Many of the REVIEW readers were present and no doubt still remember the "Nervous," "Stiff-legged," or "Fainting Goat" which was presented by Drs. White and Plaskett, of Nashville, Tenn., at the clinic of the American Veterinary Medical Association—St. Louis meeting. They will also recall an article which appeared in September, 1904, issue of the REVIEW, giving the history and a description of this goat. Since the accompanying story, which appeared in *The Taylor-Trotwood Magazine*, is amusing, especially to those who are familiar with the "Fainting Goat" as well as the "old time negro," we believe it will interest many REVIEW readers. Although this is only a story, Drs. White and Plaskett vouch for its correctness in describing two freaks of the South—Fainting Goat and Negro.

“ Did you urver notice, Marse John, de turrible hard slam de Bible gives de goatses An’ when de Good Book tags a thing it’s dar for all eternity an’ warranted not to fade. Of all de animules in de ark, snakes an’ goatses is de only things dat is under de ban. You know whut de snake done—tempted Eve, an’ de rest of us been stayin’ in after skule ever sense an’ takin’ our spankin’. But de way it throwed off on de goatses wuz wusser still, fur it laid every low-down white-livered thing that happened on de goatses. Whenever a ole Jew had done sumpin’ specially low down’ an’ wanted to lie out uv it hisse’f, he’d rub asserfeterty an’ gypsy juice on some goat an’ start him th’oo de wilderness. Dey call him a scapegoat because dey thought he orter be thankful to ’scape wid his life, seein’ he kerried so many other fo’kses sins on his back. An’ de smalles’ white man in all history, in my ’pinion, is dat ole ’sateful, oily Abraham dat had thousands uv goatses an’ yet made a scapegoat uv his own son an’ turned him out in de wilderness to die. I preaches ’gin him ever’ chance I gits an’ when I die I don’t wanter go to no Abraham’s bosom. No, suh, I’d ruther take my chances whar dars sum wool an’ a warm spot! Hit looks lak ole ’sateful Abraham cu’dn’t keep away from goatses—always doin’ sum devilment an’ layin’ it on goatses. But a man buys back ever’ rascally trick he sells to others at las’, in his own coin, an’ so ole Abraham got his back in a goat. It wuz when dat boy Ikey uv his’n fooled de ole man an’ got Esau’s birthright ’cause Esau wuz nachully a hairy one—(no wonder, his daddy had goat on the brain all his life!)—an’ Ikey, who wuz smooth, he jes’ put on a goat skin an’ made de ole man think it wuz Esau. When he found it out I’ll bet he thort uv Hagar an’ Ishmael dat he played it so low down on.

“ Oh, you kin jes’ bet a man gits whut he sows in dis worl’.

“ When ole Abraham tried to turn his little innocent but on-registered boy into a scapegoat, he nurver thort his big boy Ikey, so godly an’ so circumsized, would bob up an’ be de real thing at last.

"Ole Abraham started de thing an' all de others kep' it up an' all th'oo de Good Book de sins uv de world is laid on goatses. Dey even studied it out fur de Jedgment day when dar'll be a big separashun uv de sheep an' de goatses, an' all sinners will be turned into goatses. This allers struck me as correct, for dere is jes' about dat much difference 'twixt a game, ole, naughty, bad-smellin' sinner an' a weak, no-'count, sissy, *bah-bah*, goody-goody!

"An' it's all in favor uv de goat!

"Es fur me, give me a goat over a sheep ever' time. A goat smells bad to some fo'ks, but he'll hustle for his own, is dead game, don't complain, 'tends to his own business, ain't stuck up an' is a pow'ful ladies' man. You nurver heah of a goat-killin' dog—no, sah, but I've seed a many a dog-killin' goat. An' he best way to save a flock uv cowardly sheeps is to put a few billies in amongst 'em. But a sheep—de thing we Christyuns is picked out es emblem of all dat's good an' holy, Marse John, it's a shame! He's a meek-faced, flop-eared fool, so silly he'll jump into a bottomless pit ef his nigh neighbor happen to fall in, an' so cowardly any yaller cur can chase an' kill de whole flock. Whilst his big horns an' stiff neck is puttin' up a bold game of bluff, his slinkin' limber tail, floppin' betwixt his legs, is doin' all it can to lie out of it! Dey ain't got sense enuff to keep a crow offen deir babes when born, dey hunts fur all de soft spots in de pasture an' dey quits to anything dat gits a good holt on dey wool. Don't put up no lamb on my tomb when I'm gone, Marse John. If I've got to be pictured an' disgraced as a animule an' a nachur faker after I'm dead an' it's a ch'ice 'twixt de goat an' de sheep, carve for ole Wash a game ole goat, wise unto salvashun, keepin' his own council, speakin' no evil, stickin' to de middle uv de road—a good ole prop-a-gaitin' populite, whiskers an' all!

"Yassah!

"But I started out to tell about dem nervus goatses. I lives down nigh Marse George, an' he's got a flock uv dem goats, dat run in de pasture wid de fine mares. You know brood mares

nurver gits sick if a goat stays among 'em, fur de smell uv de goat is so servigrus, dat whenever a microbe uv eny breed gits a good whiff uv it, he des' gasps an' smiles an' dies, as de poet sez uv de hero soljer. An' so Marse George he keeps dem goats wid his mares, an' do' he 'low us to go thoo any other part uv de farm, he don't 'low nobody to make a common passway thoo de paddock. But de other Sunday es I went to preachin' I wuz late, an' thinkin' Marse George wouldn't keer dis time I tuck a short cut thoo de paddock. I seed de flock uv goats an' de mares an' colts but I wuz so busy wuckin' out my sermon, de tex' of which was, '*And he separated de sheep frum de goats,*' dat I run ober a kid asleep in de grass befo' I seed it. '*Bah-bah,*' sez de kid, jumpin' up so sudden 'twixt my legs dat I jumped two feet offen de groun'. Den I gin him a kick when I hit de yearth, clap my hands to make him run an' sed, '*Bah-bah, yo'se'f!*'

"Wid dat ever' goat dar started to run, but jes' hollered *bah-bah* an' drapped dead!

"An' when I seed whut I'd done I mighty nigh done it myse'f.

"I started on a run fur de fence, but looked back an' de groun' wuz jes' kivered wid goats kickin' an' stiffenin' out an' dyin'. I 'spected to see de mares an' colts tumble nex' so I makes a break over de fence an' over de hills back home.

"No mo' sermon fur me dat day. I'd seed all I wanted to see about goatses, unless it wuz how to raise 'em frum de dead.

"I kep' hid out all day, wonderin' ef anybody seed me. All night I dreamed uv goats—dreamed it wuz de last great day, dat Marse George wuz de great Jedge, an' when my time come I wuz cast over among de goatses. Dey had all des' riz to be jedged, but at sight uv me dey all drapt dead ag'in, jes' like dey did in de paddock, hollerin' '*No, bah-bah, no. He too mean to live wid us.*'

"Sho' nuff, at breakfus' heah cum de sheriff, an' reads me a writ an' takes me to de jestic cou't.

"I nurver had been 'rested befo'. I wuz scand'lized an' ruined, all by a lot of goatses. I axed 'em to let me see you, dat you'd go on my bond, but dey dragged me befo' de squire.

"You nurver seed sich a trial; ever'body wuz dar, an' de trouble I wuz in seem to give gener'l satisfacshun. De Majah he spoke ag'in' me, tellin' de jestic dat I went into de paddock an' kilt de whole flock uv goatses. '*He wuz so tarnal ugly dey all drapt dead at sight uv him,*' he say. He kep' dat an' some mo' up fur a hour, an' he had de whole cou'thouse, jedge an' all, a-laffin' at me. I nurver seed fo'ks hab so much fun an' I nurver felt so mean an' lown down. De Majah 'splains it wuz a flock uv ve'y unusual goatses, called Nervous Goats, an' dat dey wuz wuth a hundred dollars apiece, an' he figured out dat I owed Marse George des' five thousand, six hundred dollars an' de state pen two years hard labor fur trespass!

"Wid dat I jes' gib up. I'd figured dat ef it cum to de wuss dey wuz wuth 'bout two dollars each an' I knowed I cu'd sell de filly an' pay dat. But dis jes' ruinf me. I wanted to die. I wuz willin' fur to sell all I had an' pay up, but de Jedge sed I'd hafter make a speech an' 'splain how it wuz or he'd hafter gin jedgment fur de amount an' hang me afterwards. Hit looked lak dey wuz gwine to make it es miser'bul fur me as dey cu'd so I done de bes' I c'u'd wid a heavy h'art.

" 'Marse Jedge an' Gen'lm'n,' sez I. 'I'm a ole nigger, dat hab libed a godly life gwine in an' comin' out befo' you, an' nurver got into no trouble befo' till I got tangled up wid dat ar lot uv goatses in de paddock an' I think dis wuz de same breed dat will be on de Lord's lef' han' at de jedgment morn. Dey am na'chully de chillun uv darkness an' dis heah wuz a put-up job on me fur to make me furgit my sermon an' do de debble a good turn. Gen'lm'n, when dem goatses all drapped dead on me, don't you kno' I wuz des' as skeered as dey wuz, an' de only reason I didn't drap too wuz because I didn't stop runnin' long enuff? I wuz in de same fix dat Marse Jack Reeves, uv Hardeman County, wuz when he got drunk, missed his train an' wuz put in de same bed by de landlord wid a dead man dat had been laid out

in de hotel. 'Bout two o'clock he got sober enuff an' thirsty enuff to take notice an' he heerd two young fo'ks talkin' sweet in de room an' de young man wuz tryin' to kiss de gal. But she said, '*George, you mus'n't try to kiss me whilst we're sittin' up wid a corpse,*' an' den Marse Jack puts out his han' an' feels to see who he is sleepin' wid an' de face he teches wuz marble! He wuz in his night clothes an' it was a race 'twixt him an' de young fo'ks as to which 'ud git to de open air fust. But he 'lowed in de piece he writ about it, dat he wuz des' es bad skeered as dey wuz. Now dat's de way it wuz wid me an' de goatses, gen'lm'n, an' I think I got skeer enuff widout bein' fined an' saunt up.'

"Dis seem to tickle 'em mighty, an' de jedge said dat befo' he would decide he thort it jes' an' right fur all hands to go down to Marse George's farm an' see jes' how many goatses I *did* kill.

"Dis kerried, an' de sheriff handcuffed me an' dey all tuck me down to Ewell Farm, an' I felt 'bout de sheep-killines' dog dat ever wuz. I seed 'em all winkin' an' laughin' es dey went along, an' me a-beggin' em to let me go off an' die. We went to de paddock an' dar wuz anurr flock of goatses, 'zac'ly lak de ones I'd kilt. I looked at 'em 'stounded lak, fur I seed I'd lef' some seed goatses an' knowin' how dey prop-a-gaits, I jes' na'-chully thort dey'd done all dat in two days.

" 'Dar is a new flock,' sez de sheriff. 'Now, ole man, des' sho' us des' how you did manage to kill all dem other ones.'

" 'Gen'lm'n,' sez I, 'I wuz comin' 'long right heah, a-wuckin' out my sermon, an' right heah,' sez I, 'I steps on a little goat entirely unbeknownst to me, an' he skeers me so I jumped twenty foot in de air, comin' right back down on dat fool goat, dat didn't do nuffin' but dance up an' down, hollerin' *bah-bah*, an' tangled me up so ever' time I step he'd be dar whar I step at. "*Bah-bah*," sez he, still a-dancin' 'twixt my legs. "*Bah-bah, yo'se'f*," sez I; "*if you cayn't run, fur Gord's sake git ouden de way an' lem me show you how*," an' den, gen'l'm'n, so he'p he heab'n, I didn't do nuffin' but jes' gin a big whoop an' clap my hands like dis —.'

"I heard 'em all shout wid fun, an' I looks an' 'fore Gawd, I'd done it ag'in—ever' goat dar had drapped dead

"I broke an' tried to run, dis time to de creek to drown myse'f.

"'Ketch him,' sed de Majah; 'don't you see he is de ole debbil hisse'f? Ketch him; he's a witch.'

"I stood par'lyzed, beggin' 'em to kill me an' den I seed one goat after anurr kick awhile an' den git up es solemn es deacons, an' go to eatin' grass es natchul es a grass widder!

"I broke in a big laugh an' shouted an' de squire sed:

"'Resurrection morn, Wash—fust man up fur a mint julip!'

"It wuz all fur fun an' dey had put it up on de ole man scan'lous, but de aftermath wuz fine—a shady grove, a good barbycue uv dat very kid dat had skeered me so, watermillions an' mint julip!

"But I nurver 'spects to heah dem white fo'ks tell de las' uv it an' na'chully I keeps shy uv nervous goatses an' nervous fo'ks uv all kind!"

MULES THE WORLD OVER.—South America has 7,000,000 mules, Europe 1,488,000, Africa 280,000, the United States 3,600,000, Mexico 335,000 and Australia only 1,000. The average value of a mule on an American farm is \$125, and in war time considerably more.

EXAMINATION FOR LICENSE IN NEW JERSEY.—The State Board of Veterinary Medical Examiners of New Jersey will be in session at the State House, Trenton, N. J., June 26 and 27, 1908, for the examination of applicants for license to practice veterinary medicine in that state. Those concerned are referred to table on "Laws Governing Veterinary Practice," May REVIEW, page 244.

MORTALITY OF BULL FIGHTING.—During the past year deaths and injuries among the Spanish bull fighters have been unusually numerous, and in all eighty-two of the profession, including nearly all of the best-known espadas, have received more or less severe injuries. The mortality among the animals has also been exceptional, 2,980 bulls and 2,720 horses having been sacrificed in this way.—(*Medical Record.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CÆSAREAN OPERATION IN SOWS.*

By DR. W. A. HECK, West Liberty, Iowa.

Cæsarean section in sows for the removal of fœtuses when normal birth is impossible has always been to me a very interesting subject. My first experience began in 1894, but my first subject died, and I was so intimidated that I did not re-attempt the operation for several years. My next effort was more satisfactory, and in the last ten years I have been operating on a great many cases every year. I only wish I had kept an accurate record of all my cases, as now it would be most interesting to look back over my experience for years to see if there has been any marked improvement in my work.

The past year (1907) is the only year I have kept any record at all of my surgical cases of this character, and I now regret that my data is too meagre to admit of its full benefit in this paper. I will give it to you in a general way, mentioning a few individual cases which were of more than ordinary importance, after which I will give you briefly my technique in operating.

In 1907 I operated on 52 cases, two of which were not reported upon, leaving an even 50 to report in this paper. The practical listener is already asking, "What percentage of these did you save?" and I will answer at once to relieve his anxiety that 60% of these were successful and 40% (or 20) unsuccessful.

Of course we are more interested in the ones that died than the ones that recovered, hence my comments will be mostly on those failures. Nos. 2, 3, 9, 15, 18, 33, 43 and 49 were subjects that were rapidly approaching death and should never have been touched with a knife, hence their deaths should not be charged to the operation.

Nos. 1, 7, 8, 14, 16, 28, 30, 34, 35, 41 and 45 were reasonably good cases, but died from various causes, the majority of them from chloroform anæsthesia. No. 23 was a case of

*Report presented to the Iowa State Veterinary Association.

peculiar interest. She was a Poland China of medium size not long in labor. Was called in early evening, but was compelled to work by lantern light, which is always a disadvantage. The patient was badly bloated, and on incision there was such a protrusion of small intestines that I was very much handicapped in my work. Drew off gas by means of hypodermic needle, but notwithstanding the collapse of the bowels I could not progress with any speed, and the result was a bungling operation which terminated in death in two days. It is rare that we meet with such extreme flatulence in the early stages of labor.

No. 28 is an interesting case which clearly illustrates the injudicious use of chloroform. This sow, Poland China of average size, was in labor one night and I was called next morning. Arrived at farm about nine o'clock and proceeded to operate at once. The sow was anæsthetized with chloroform when I began my operation, trusting to the owner to handle the anæsthetic. All progressed well until I discovered, as my work was nearly completed, that the uterus was undergoing a transformation from beautiful pink to a violent blue. I realized at once what was happening, but it was too late. In spite of stimulants injected hypodermically and other means of restoration, the sow promptly died, but I assure you it was an easy death.

No. 24, which is one of the brilliant recoveries, is of very great interest and it is the only case of recovery which I will mention to any extent. This was a Poland China sow, weighing 275 or 300 lbs., that had been in labor over night but without result. The sow was cast and chloroformed and incision made as I usually do, but on entering the abdominal cavity with my hand I found to my great surprise that there was not a pig in the uterus or, on further investigation I found there was a rent in the uterus near its bifurcation, and the dead foetuses, four in number, had escaped into the abdominal cavity and were floating among the intestines, each nicely attached by means of his navel cord to the placenta, which was still intact in the uterus. The pigs were extracted, the uterus closed by silk sutures, and the owner apprised of the inevitable results; death in a short time. Much to my surprise in a few days the owner reported the sow as all well and doing as well as any of the herd. The uterine contents in this case could not have been septic or septic peritonitis would have been inevitable.

The interesting question arises, When did the rent in the uterus occur? Did it occur from the strong contraction of that

organ before my arrival, or did the exertion incidental to the casting and chloroforming cause it? Of course we will never know; notwithstanding all our theorizing, it will ever remain a mystery. My opinion is the rent occurred previous to my arrival, as on one occasion, when a federal meat inspector, I found in a killing house a mummified pig floating in the abdomen of a sow which had been shipped to market. The evidence indicated that it had been in this strange location several months and doubtless had been deposited there in the same manner as the foetuses just mentioned.

I have experimented a good deal in operating, varying my technique, trying to determine the most practical method. I have operated on both the right and left side, also on the median line, but my experience last year was confined mostly to one method which seems to be most successful with me. I usually begin by having ready a large tin pail of clean, warm water, pretty warm at first, as it will grow colder as you progress. A couple of tin basins and plenty of silk sutures, needles and a sharp scalpel, together with a clean towel. For the anæsthetic I have ready an old tin quart tomato can with a sponge or a bit of cotton in the bottom. The sow is cast on the left side, and if help is scarce the sow is tied, leaving the right hind leg free to be held by an assistant. The hair over the right flank is clipped with a pair of horse clippers, carried for the purpose, and all loose hair is brushed away. I find the clippers and brush is so much more satisfactory to the scissors both in speed and quality of clipping. The chloroform is then administered and usually it takes a few inhalations to get them under, when I give the can to some assistant to use as I direct. I begin then rapidly to scrub the surface to be incised with hot water and synol soap and a scrub brush. I usually clip a large surface so as to allow of drawing much of the uterus out and not contaminate it by touching unwashed parts. After the parts are thoroughly scrubbed, I wash my hands thoroughly in an antiseptic, and with the sharp scalpel make a bold incision in the skin and muscular tissue down to the peritoneum which will be recognized by its bluish tint. I aim to make the incision quickly without haggling the interlying muscles and of six to eight inches in length, almost vertical, but slanting slightly from the point of the ilium toward the sternum. When the peritoneum is laid bare puncture a small hole with scalpel and then with two fingers dilate to as long as is necessary to admit

the hand easily. Insert hand and at once locate the contents of the uterus, ascertain how many foetuses are there and how they are distributed, which is a guide as to the procedure of their removal. I usually lift out the top or nearest horn of uterus with its contents and lay them out on the washed skin of the mother and drawing down the horn to its bifurcation make a longitudinal incision in the horn large enough to extract a pig. I usually have an assistant to grasp the pig and extract it, leaving myself with clean hands to manipulate the foetuses to one opening where the assistant will continue to draw them out. When the pigs are all removed from the upper horn proceed in the same manner with the lower horn, and when all are removed the placenta then is carefully removed, but if it is too tight leave it alone and close the opening in the uterus with silk sutures. I believe the Lembert suture is best, using a round needle.

After the suturing wash the uterus that is contaminated thoroughly with an antiseptic. I have used nearly all of them and like the coal tar products best. When all is disinfected, replace the uterus and close the abdominal wall with strong silk, using the interrupted suture. I would use about four sutures in the outer wound. If the operation is a neat one it will be hard to see the wound in the skin as the parts come together so nicely, and a great many will heal by primary union. Many times the pigs are delivered alive. I have taken ten live pigs from one sow, and it is interesting to see them scrabbling for a dinner long before you have the operation completed. Sometimes one pig alone will be alive, the balance dead, and sometimes there is only one pig remaining to be removed, and in this case the operation is very simple, and I can not remember a failure where I have removed but one foetus. Where the foetuses have been dead for some time and they become emphysematous, removal is sometimes very difficult, and in this class of cases I usually remove the uterus by severing the ovaries and ligaments with my castrating emasculator and pulling all the uterus with its contents to the outside and severing the uterus at its posterior part with the same instrument. By this method you get but little hæmorrhage, but I would advise ligating the large vessels to prevent subsequent bleeding. I have had several fatalities from hæmorrhage. My method is to ligate the blood vessels before amputation of the uterus, as the throbbing arteries can be plainly felt and can be easily tied. The

after treatment is to allow them nothing to eat for three days, but allow all the cold water they will drink. Sometimes wetting the external wound with a bichloride solution once or twice a day is advised when it is practicable.

Saving 60% does not look well on paper, but you must consider that too often a farmer will wait two or three days to see if the sow will not get along without assistance save only as he can give her aid, and you may rest assured that no one is ever called till the farmer has exhausted all his resources. Often the sow is so mutilated and torn by the owner death will ensue from these wounds alone, and, of course, our heroic operation is to blame. I have contended for a good many years that if taken in time 80% can be saved, and I am still of that opinion. The delayed and neglected cases are the ones from which we have our greatest losses. I try to impress upon my clients that it is useless to call me after a sow is exhausted from long-continued labor and putrefaction is well established. Still, some of my most brilliant recoveries have been cases where putrid fetuses were removed and sow had been in labor two or three days. I have heard it said by some veterinarians that it does not pay to bother with the hog practice, and to satisfy those of you who are in doubt I will add the additional information that the total receipts from these 50 cases were \$163, or an average per case of \$3.27. I always charge \$2.50 to \$3 if the cases are handy, and mileage if I go in the country, the same as to see a sick case. It will occupy about twenty or thirty minutes' time to do the operation and we usually spend about as much time in making an ordinary call.

There is an added feature besides the fee we get for the work, and that is the prestige it gives one with our clients. If we can do this work successfully there is no operation we do that commands more profound respect on the part of our farmer friends than this one of Cæsarean section.

RUPTURED BURSA.

By DR. HOLTON.

Reported to the Minnesota State Veterinary Medical Association.

November 8, 1907, a gentleman called at my office and said that he had a lame mare outside; liked to have her examined for lameness. I examined the animal and found what seemed to be a slight nail puncture at the superior point of the os calcis where the flexor tendons pass over. The animal did not appear

to be very lame. I prescribed mild astringent lotion to be applied externally twice a day; also a creolin solution to wash off wound, and told owner to rest animal for at least two weeks and if leg commenced to swell to apply poultice of flaxseed. But to all appearances the animal got along nicely until November 20th, when he took the mare out and drove her about fourteen miles. When she was taken care of in the evening she was apparently all right. On the morning of November 21st they found her standing on three legs. I was called to attend her and found her to be in very great pain and unable to bear any weight on the leg. At the point of injury I could see oozing forth a small stream of synovial fluid mixed with pus. I immediately diagnosed the case as ruptured bursa. I administered five grains of morphine sulphate and proceeded to examine the wound closely for any foreign body which might be the cause of the trouble. I inserted, very carefully, a blunt-pointed probe. It took a downward course of about one inch, but I could not detect any foreign body. I irrigated wound with a mild creolin solution and applied equal parts of tannic acid and collodion and applied a pad of absorbent cotton and bandaged leg. I left this on for two days. When I returned again the synovia and pus was flowing from wound as freely as ever. I irrigated wound again and applied equal parts of iodoform and tannic acid in the form of a dusting powder, bandaged leg again as before; returned again in two days, but no better results obtained from this treatment. I found an enormous quantity of synovia and pus. I now made up my mind that this treatment was not rational and decided to try a more strenuous method of closing the wound. I made a round firing iron, heated and applied it to the wound, pressing it in as far as it would go. This seemed to have a better effect than any treatment I had as yet administered, but I still had a slight discharge from the wound. I did not call again for four days. I tried firing again—line firing the tendons on each side, and again pressed iron into wound and applied a good strong blister. I bandaged wound with cotton and gauze and allowed bandage to remain on for one week. This seemed to have the desired effect, as the mare commenced to improve. The next time I called the bandages were perfectly dry and I allowed them to remain for a few more days before removing them. The mare now began to stand on the leg, standing on this one more than the one that was not injured. There is a slight swelling yet at the point of injury and on the lateral side of tendons. I re-

moved her from the slings, and, to all appearances, she is as well as ever, showing scarcely any lameness. I might add that this is two of these cases I have had this summer—the other case being opened in the fetlock joint; but both have made a good recovery. I find them very difficult to treat, as the animal becomes very irritable. I do not place animals in slings until they become very tired. At no time did I get a very high elevation of temperature or loss of appetite.

PASTEUR VACCINATION AGAINST RABIES—DOG.

By J. F. PLANZ, D.V.M., Akron, O.

Reported to the 25th Annual Meeting of the Ohio State Veterinary Medical Association.

Saturday, March 9, 1907, we were called to look after a dog which had bitten two boys and several dogs. Upon arriving at the scene the dog was not to be found. After scouring the neighborhood for half an hour we finally caught sight of him coming toward his home. A bulldog stood guard nearby and ran out directly in front of the slowly-trotting cur. Quick as a flash the bulldog was bitten, when the offending canine continued on his way as though nothing had happened. My partner, Dr. Case, finally caught the dog in the owner's kitchen and we placed him in a cage at our hospital 10.30 Saturday morning. The dog died the following Monday at noon, having shown symptoms characteristic of rabies. A microscopic examination of the brain presented lesions considered pathognomonic of rabies. The owner of the bulldog referred to above upon being informed he would have to dispose of his dog came to us for advice. We suggested giving the dog the Pasteur treatment to which he readily consented.

In an interview with Dr. Eddy, of Cleveland, we were informed that the Health Department treated people bitten in Cleveland, obtaining the virus from the Experimental Laboratory in connection with the New York Health Board. We concluded to treat the dog at our place, and immediately wrote to the Experimental Laboratory, stating the condition of dog, age, weight and nature of wounds. The first dose arrived promptly by special delivery, followed each day by the dose for that day. The dog had been bitten twice, once upon the lateral side of his neck, and once in the lower lip. We cauterized the wounds with fuming nitric acid, but ample time had elapsed for the absorption of the toxic, so we laid little stress upon this

procedure. The injections were made under as strict aseptic conditions as possible, the lateral and ventral surfaces of abdomen being used, no abscess or swelling ever developing. The following is a record of each day:

Date.	Temp.	Pulse.	Condition, etc.
March 16	102.6	90	Homesick, good appetite.
" 17	101.4	80	Nothing abnormal apparent.
" 18	101.3	72	" " " expect bowels loose.
" 19	101.4	72	Condition unchanged.
" 20	101.2	72	" "
" 21	102	90	" "
" 22	100.8	76	Fæces quite mushy.
" 23	101	76	" " "
" 24	101.4	80	Diarrhœa.
" 25	101.5	80	" ceased, still mushy.
" 26	102.2	80	Bowels quite loose.
" 27	101.6	80	Fæces normal.
" 28	101.6	80	Nothing abnormal apparent.
" 29	100.8	80	" " "
" 30	100.8	80	" " "
" 31	101.2	80	" " "
April 1	101.4	80	Somewhat irritable.
" 2	100.7	80	" "
" 3	100	75	Constipated.
" 4	101	76	"
" 5	101.6	78	Normal again.
" 6	101.2	78	Nothing apparent.
" 7	102.2	90	" "
" 8	101.8	80	" "

During the entire treatment appetite was always good.

Two gr. of calomel were given, and after five days as nothing of an abnormal nature appeared the dog was discharged. Think it advisable to administer the virus the full quota of days, namely, 21, known as the intensive treatment, irrespective of the extent of the wounds or locations thereof, which modifies the treatment in human practice, the dog being more susceptible. Up to the present date the dog has been in the best of con-

dition, just as though nothing had ever happened. The experiment proved very interesting and we shall never hesitate to accept dogs for such treatment.

Had two dogs for treatment in August, but was unable to obtain the virus owing to the great demand for it at the time in human practice. After three weeks we were informed it could be mailed again.

APOPLECTIFORM SEPTICEMIA IN CHICKENS.

By WINFRED B. MACK, D. V. M., University of Nevada.

On December 1, 1905, there was received at the New York State Veterinary College, Ithaca, New York, a dead chicken. It came by express from Lake Placid, Essex County, New York. The owner had lost a considerable number of fowls, and sought a diagnosis and advise. The dead bird was turned over to the writer, who at the time was assistant in the Department of Comparative Pathology and Bacteriology, for examination.

Autopsy.—Adult hen in fairly good condition. The mouth contains blood-stained mucus. The intestines and liver are covered with coagulated exudate. The abdomen contains a considerable quantity of sero-sanguinous exudate. The liver is enlarged, pale and very friable. The abdominal and thoracic viscera are deeply congested and present a peculiar yellowish discoloration. There is a thick fibrino-sanguinous exudate covering the lungs and heart. No hæmorrhages observed.

Smear-d cover-glass preparations were made from the exudate, lung, heart's blood, liver, spleen and kidney, stained with alkaline methylene blue and examined. All showed numerous short chains of streptococci.

Pure cultures of a streptococcus were obtained in bouillon and slant-agar tubes from the exudate, liver, spleen, lung and heart's blood.

Inoculation Experiment.—December 2d, at 3.00 P. M., an adult fowl was inoculated subcutaneously with 0.5 c.c. of a 24-hour bouillon culture from the heart's blood of the above-mentioned fowl. At 4.00 P. M., December 3d, she appeared well. At 9.00 A. M., December 4th (forty-two hours after inoculation), she was found dead and had apparently been dead several hours.

Autopsy on Experimental Fowl.—The liver is enlarged and friable and presents the peculiar pale yellowish color noticed in the original subject. The lungs are somewhat congested, the pericardium is filled with sanguinous fluid, the auricles are distended with black, coagulated blood.

Cover-glass preparations, made and stained as above, show short chains of streptococci, very numerous in the lung, heart's blood, liver and spleen; some in the bile, and a few in the brain, muscular and cellular (connective) tissues.

Cultures were made from the liver, spleen, kidney, pericardial fluid, heart's blood and brain of this fowl. These cultures were examined macroscopically by another person and reported to us as positive, but were never examined further except that some weeks later subcultures were made, but they did not develop, the organism having died meanwhile. Owing to the writer's serious and prolonged illness, this work had to be abandoned and the material was lost.

Appearance of the Organism.—In bouillon cultures there is no turbidity, but small flocculi adhere to the glass at the sides and form a sediment in the bottom of the tube. In cover-glass preparations made direct from the tissues, stained with alkaline methylene blue, and in one made from a twenty-four hours' bouillon culture, stained with carbol-fuchsin, it takes the stain readily and uniformly. The organism is spherical, from 0.6 to 0.8 microns in diameter. In the tissues they are united in pairs and in short chains. In culture they are similar, except that a few masses were observed where the chain formation could not be detected. For the most part they occur in chains of from two to six individuals. A few chains of eight are found; rarely any longer than eight.

In 1902 Nörsgaard and Mohler¹ reported a serious outbreak of an acute disease among chickens from Loudoun County, Virginia, due to streptococcic infection, to which they gave the name Apoplectiform Septicemia. This appears to be the only description of the sort on record.

Although our work consists of the examination of but a single case, and of but one inoculation experiment, it is sufficient to demonstrate the existence, at that time, in Northeastern New York, of a disease quite similar to Nörsgaard and Mohler's, probably identical with it, and to suggest the possibility that it exists

¹ Nörsgaard and Mohler. Apoplectiform Septicæmia in Chickens. Bulletin 36, Bureau of Animal Industry, U. S. Department of Agriculture. 1902.

in numerous localities without having attracted scientific attention.

It is to be regretted that this outbreak could not have been followed up carefully and completely, but for the reason above mentioned, the writer was unable to do so, and, owing to the pressure of work in the laboratory at that time there was no one to undertake it until the cultures were dead. However, although but little work was done, it seems of sufficient importance to warrant publication.

RECOVERY IN SERIOUS SYNOVITIS CASE.

By DR. C. A. BARNES, Forest City, Ill.

Reported to the Illinois State Veterinary Medical Association.

A sorrel western mare, weight 950 lbs.

History.—Jumped over a barb-wire fence, cutting deeply into left hock joint. On examination a couple of hours later found a stream of synovial fluid trickling down on either side of the limb and a nearly circular opening not much lacerated which was large enough to admit of two fingers being passed directly to the naked articular surface of trochlea on front of the hock; the limb hung almost limp and straight as it would if broken; wound seemed fairly clean.

Treatment.—Applied a good biniodide of mercury blister to entire surface of hock anteriorly; then, as there was synovia still flowing freely, I applied a small quantity of pine phenic acid crystals directly into the opening over which was placed a heavy coating of granulated sugar and a good retentive dressing. This was allowed to remain till the morning of the third day when I removed it and found only a very small place showing signs of a slight ooze of synovia, when I again applied biniodide of mercury ointment directly to the spot and another retentive dressing, and after three days more found hole well closed and wound doing nicely. Mare made a good recovery with no scar to speak of and only a stiffness of hock resembling that of a mild case that has made good recovery from firing for low spavin, with limb a little straighter than its fellow.

GOING to law is losing a cow for the sake of a cat.—
(Chinese Proverb.)

ARMY VETERINARY DEPARTMENT.

INCREASED PAY FOR ARMY VETERINARIANS.

There has been rejoicing and celebrating throughout the army at the news that the Army Pay Bill had been passed by Congress and signed by the President on May 11, 1908, on which day it went into force. The bill carries a substantial increase of pay for the officers and enlisted men of the army, and the veterinarian, having by law the pay of a second lieutenant, benefits by its provisions accordingly.

The pay for the month of May is a split pay, best left to be figured by the paymaster himself. Below is the new schedule of pay beginning with June, 1908, giving the five different grades of pay for veterinarians, according to length of service, and whether owning one or two serviceable mounts or being mounted at government expense, per year and per month:

Pay of Second Lieutenant..	Flat Pay.	After 5 Years.	After 10 Years.	After 15 Years.	After 20 Years.
Pay per year.....	\$1,700 00	\$1,870 00	\$2,040 00	\$2,210 00	\$2,380 00
Pay per month.....	141 61	155 83	170 00	184 17	198 33

Owning one horse, add \$12.50 per month (\$150 per year).
Owning two horses, add \$16.67 per month (\$200 per year).

Although the army veterinarian still draws the lowest pay among officers, which is entirely out of proportion to his expenses and services rendered, yet this increase in pay will be a welcome contribution towards defraying the monthly expenses in the homes of our married veterinarians who are greatly in the majority. We heartily congratulate our army colleagues on the enactment of this law, which in a measure compensates for the sure failure of the Army Veterinary Bill during the present session of Congress, which, at this writing will close in about one week, leaving no hope for its passage. O. S.

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PERSONAL ARMY NOTES.

Dr. Burt English, 2d Cavalry, Fort Des Moines, Iowa, will enjoy a two months' vacation, beginning with June 15, 1908.

Dr. Olof Schwarzkopf, 3d Cavalry, officiated as judge in the classes of three-gaited saddlers and hunters at the San Antonio Horse Show, May 13-16 inst.

Drs. L. E. Willyoung, 1st Field Artillery, Fort Sill, Okla., and Schwarzkopf and Mitchell, 3d Cavalry, will join the military manœuvres at Leon Springs, Texas, to be held July 2-30, 1908.

DUCKS DYING BY HUNDREDS.—Again, as for several seasons past, wild ducks are dying by hundreds in the marshy regions bordering on Lake Erie, between Huron, ten miles east of Sandusky, and the mouth of Maumee River, near Toledo. Examination reveals the presence in the head feathers of many of the ducks found of a small insect not unlike a flea.

LOCO POISONING.—“Loco” poisoning, which has long caused such great losses among the animals on the ranges of most of our western states, has hitherto baffled all attempts at explanation. Of the numerous suggestions made, the one which attributes the condition to the eating of poisonous plants (the “loco” weeds, especially *Astragalus mollissimus* and *Oxytropis lamberti*) has been the most generally accepted, but attempts to isolate a poison from these plants have been uniformly unsuccessful. A. C. Crawford, a pharmacologist in the Bureau of Plant Industry, has made the most interesting and important discovery that the toxic substances of the plants are inorganic salts, for the most part of barium. Only those “loco” plants containing barium produce the symptoms, and Crawford has been able to produce in animals symptoms closely similar to those of “loco” by feeding barium salts. These results are of great interest to the medical profession for they afford another illustration of the evil effects which may follow the long-continued use of minute quantities of a poison. It is already recognized that barium is a dangerous poison to man and a few cases of chronic poisoning have been reported; but before the announcement of the brilliant discovery of Crawford, probably no one would have suspected that this substance could produce such fatal and serious results. The publication of Crawford’s complete paper, which promises to be one of the most important contributions made to pharmacology in the United States, will be awaited with great interest.—(*Journal Am. Med. Association.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

INTUSSUSCEPTION IN A MARE [Capt. W. A. McDougall, A. V. C.].—The record of a mare that died after some 37 hours of continuous colics, and at the *post-mortem* of which an intussusception of just over one foot of ileum into the cæcum was found. The invaginated portion was gangrenous and the lumen of the bowels obliterated. There was also local peritonitis in the vicinity of the lesions.—(*Veterin. Record.*)

PEAT MOSS BEDDING [Capt. C. E. Steel, A. V. C.].—A horse has dermatitis on the breast between the fore legs, on the body and sheath. The hairs were off and there was numerous raised pimples as big as a pea, many of which had burst, leaving circular inflamed area from which flowed slight clear watery fluid. On other parts the skin was raised, wrinkled and tender. On inquiry as to the cause, it was shown that the trouble was due to the action of the urine soaked in peat moss bedding, which had not been removed as it should have been. Similar cases had already been observed. The treatment consisted in changing the bedding to fresh straw and local soothing applications on the skin. Everything disappeared in a week.—(*Veter. Record.*)

A SIMPLE CONTROL [P. J. Howard, M. R. C. V. S.].—Every practitioner has met that troublesome class of patients that resent or rebel against any interference, unless placed in stocks or cast. To the country practitioner these are not always possible or practicable to resort to. One day a man suggested to the writer the ordinary "Fetter" used with success on vicious horses. This consists in just simply tying together the fore and hind leg of the same biped, just as one sees goats and donkeys tied to keep them from straying. The author has an ordinary hobble with rope attached. The hobble is put on the hind leg, which is pulled forward and the rope is twisted a few times round the

fore leg and secured with a plain hitch or knot on the hobble ring, which can be loosened with a pull. A pair of knee caps may be useful to have in bad cases which might get down.

Mr. Howard has resorted to "Fetter" in many instances and has fired hocks for curbs and spavins with it.—(*Veter. News.*)

PECULIAR SKIN LESIONS IN CATTLE [*R. Paine, F. R. C. V. S.*].—These recorded cases seem to add strength to the general opinion reigning in South Africa, that the sun has injurious effects upon unpigmented skin.

At the end of August a Friesland 5 years old cow was noticed to be slightly constipated. She was purged. Later she became restless when milked. After a few days, the teats became hard, dark red color and painful. The skin had become hard also. It was then noticed that the white portion of the skin all over the body except that under the belly and chest was becoming hard, and that there was a distinct line of demarcation between the white and the black skin, the white appearing as if it had been blistered. About three days later the skin began to slough in solid pieces, leaving a raw surface with little or no pus. The animal did not seem to suffer and after three months the skin had returned to its normal condition.

Another 6 years Friesland presented the same condition one day. Her teats became hard, dry and tender, the skin of the udder was in the same condition; her appetite was still good. Later the whole skin all over the body raised and became hard. There was no excessive secretion on the surface of the skin and little or no fluid under it, and in a week or ten days the skin began to slough as in the first case and the lesions were of the same aspect and acted in the same way.

It seems that other similar cases have been observed by other practitioners. The treatment consisted in the application of carron oil.—(*Journ. of Comp. Patho. and Ther.*)

UNCERTAIN RESULTS AFTER REPEATED TESTING WITH TUBERCULIN [*R. Paine, F. R. C. V. S.*].—The author has observed that "animals which have given a typical reaction to tuberculin test, may subsequently pass three later tests and at the fifth test, may subsequently, even when a considerable period has elapsed between the tests," and he makes the following inquiries: After an animal has once reacted to the test, is one justified in assuming that the animal has recovered, even if it has ceased to give a reaction? If so, after how many negative results?

So far the author has had no satisfactory answers. He then records the results of five tests made upon a bull and a cow, which illustrate his observations.

When killed, no definite lesions could be found in the bull. On the cow there were extensive tuberculous lesions, many of which were calcareous. The tuberculin used was also applied to other animals and those which reacted were in each case found tuberculous at post mortem.—(*Journ. of Comp. Patho. and Therap.*)

TETANUS FOLLOWING DOCKING IN LAMBS [*W. W. Goldsmith, M. R. C. V. S.*].—Seventy Suffolk ram lambs and eighty ewe lambs about one month were tailed. In all the ewe lambs, save two, the tails were simply cut off with the knife; but in two of the ewe lambs and all the ram lambs the stump, after amputation, was slightly seared with the hot iron, as the stump was bleeding rather freely. Five days later, two of the ram lambs died of tetanus, and nine more during the next two days. By the advice of Sir John McFadyean, anti-tetanic serum was resorted to and the surviving ram lambs received 80 minims of it. Before this was done, however, eleven animals in all died, and more than twenty were showing symptoms; two of these, being obviously dying and several others severely affected. Among these were included both the ewe lambs, which had had their tails seared, but no case occurred among the other ewe lambs. One of the ewe lambs succumbed to the disease, but the other recovered. After the injection of the serum no other cases developed, but six more deaths occurred among those which were already sick. It is strange that no case occurred in a lamb in which the tail had not been seared.—(*Journ. of Comp. Pathol. and Therap.*)

NERVOUS SYSTEMS OF TWO DOGS WHICH PRESENTED VARIOUS NERVOUS SYMPTOMS [*F. E. Batten, M. D., and Gordon Holmes, M. D.*].—The illustrated records of two cases which occurred in dogs and presented lesions carefully described by the authors.

The first dog came under the observation of Prof. Hobday, F. R. C. V. S. He was in good condition, well nourished, would take his food well at first. When left alone the dog walked around with his head bent down. He did not seem to see, and when reaching a corner, he stopped and would remain indefinitely, unless his head was turned round, when he would start again. He walked on a very wide base, in an ataxic manner. He had frequent sharp contractions of both fore and hind legs. There was no rigidity of the legs, and all movements were performed. All

reflexes were brisk; the sense of smell was deficient. He would eat any food when placed on the ground. If in a bowl, his nose had to be put on it. He appeared quite blind. His pupils were large and reacted to light. Microscopical examination revealed marked perivascular infiltration of brain tissue; the brain is more affected than the cerebellum or medulla, and the medulla more than the spinal cord. The cell changes are most marked in the cells of the cortex. There was considerable degeneration of the cortico-spinal tracts.

The second case was that of a bitch which for some weeks had been getting dull and stupid. She became very thin and wasted, walked very unsteadily, hind legs drawn up and near the fore. She readily fell over into sitting position, could rise with difficulty and wander round. Sight was deficient, if not absent. Hearing was defective. She could not lap; if her nose was placed in a bowl she made no attempt to eat. Fed with a spoon, she would swallow with difficulty. There were no spasmodic movements of limbs, no localized paralysis. Knee-jerks were active. The dog could find her own kennel and would remain lying down for an indefinite time if not disturbed. The lesions were very similar to those of the first case. Perivascular and interstitial infiltration of the brain. Changes in the cells most marked in those of cortex and medulla. Considerable degeneration of the cortico-spinal tracts.—(*Veter. Journal.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PROLAPSUS AND COMPLETE RUPTURE OF THE RECTUM, COMPLICATED WITH HERNIA OF A LACERATED INTESTINAL CIRCUMVOLUTION [*Mr. Fyot*].—This case took place in a horse thrown and secured for operation. The animal (thoroughbred) was 6 years old and was to be fired for lesions of osteo-arthritis of the hock. He had been prepared, cast easily, and being of a quiet disposition, struggled very little and only now and then.

Three-quarters of the inside of the hock had already been covered with points of firing, when a great acceleration of the

respiration was observed, accompanied with frequent abdominal contractions, followed by the expulsion of intestinal gases. The operation was stopped for a while and as everything seemed to have returned to a normal condition it was resumed. When suddenly, after few more points had been applied, the abdominal contractions reappeared, and under their influence prolapsus of the rectum took place; the organ presenting itself as a voluminous cylindrical tumor about 20 centimeters long. This was in a few seconds followed by a violent effort of the horse, and a laceration of the rectum took place and through it passed a loop of small intestine about 1 meter 30 centimeters long, and a portion of the small colon, 1 meter 90 centimeters long. There was besides, near the middle of that portion of the colon, a rupture, 3 or 4 centimeters long, with irregular and hæmorrhagic edges. Closer examination revealed the fact that the injury of the rectum was not a laceration but a complete circular rupture, the continued portion of the floating colon remaining in the abdominal cavity. The animal was immediately destroyed.

Post-mortem.—Nothing of importance beyond what existed outside of the animal was found. There was no contusion. The abdominal cavity contained 4 or 5 liters of blood. Stomach and small intestines are empty. The large intestine contains but little, and the portion of the floating colon corresponding to the rectum has its edges hæmorrhagic and irregular. The mucous membrane and the muscular coat have their normal thickness.—(*Bullet. de la Soc. Cent.*)

CARIES OF INCISIVES AND OF THE INTERMAXILLARY BONE IN A HORSE [*Mr. Douville*, Adjunct to the Clinics, Alfort].—A first case was noticed in 1896 on an old imported American horse. This is the second case on record, as far as the author knows.

Bay mare, 15 years old, looses flesh since several weeks; her appetite is good but her prehension of food is difficult. Now and then she takes hold of the manger as if cribbing. Opening of the mouth, and especially raising of the upper lip, is painful, and she rebels against it. She has a fetid, unpleasant odor from the mouth, the upper gums are inflamed, and gone round the left nipper. This is somewhat loose and there is a fistulous tract running in the alveola down to the incisive bone, which crepitates against the probe introduced in the fistula. Small pieces of bone come out. To extract the tooth, a T incision was made on the gums and the alveolo-dental periosteum, the tooth was well isolated and exposed and with a gouge applied on its root, was

easily extracted. Quite a quantity of sanious pus escaped. The bone was scraped and touched with tincture of iodine. Dressings with boric acid were kept up for a while and recovery completed in 15 days.—(*Recueil de Medec. Veteri.*)

CHONDROMA OF THE ELBOW [*Prof. Cadeac*].—This is the *post-mortem* of a dog, 10 years old, which was destroyed because of his condition. He presented on the left foreleg a large tumor, invading the arm, half of the forearm and a large part of the shoulder. This tumor is nearly round, measures 58 centimeters across and has a vertical circumference of 61 centimeters. It weighed 4 kilogs. 700 grammes. It has a uniform hard consistency, and offers when cut, the resistance and aspect of cartilaginous tissue. The skin that covers it is ecchymotic and ulcerated on the internal face of the arm and near the shoulder joint. The sub-cutaneous cellular tissue is thick and œdematous. The tumor extends from the middle part of the forearm to the middle of the scapula and surrounds the elbow and the shoulder joints. The inferior extremity of the paw is œdematous and ulcerated. The blood vessels are pressed upon by the tumor. The bones are surrounded with the neoplasm, make part of it, and it is in vain that the humerus and the superior extremity of the radius and cubitus are looked for. There is no more cartilaginous tissue. The tumor can be cut in any direction and in no place is the hardness of bony tissue felt. This chondroma, composed of hyaline tissue cartilage, has also involved the prescapular gland, which is hypertrophied. The lungs are also invaded with secondary tumors.—(*Journ. de Zootech.*)

ABSCESS OF THE TRACHEA CAUSING DEATH BY ASPHYXIA IN A HORSE [*Mr. Breton*].—This horse had strangles, complications of pneumonia, but which recovered after having had several abscesses. He resumed his work sometime after, and then became affected with roaring, at first slight, and later very loud. An abscess was forming on the left parotid region, which before it was sufficiently ripe to be opened, necessitated tracheotomy. Some time later he began to roar again, especially when working hard. But as no special cause for it could be found, an antistreptococcic treatment with polyvalent serum was prescribed. The roaring became more severe, and as he was taken to the author's hospital he suddenly dropped and died in the street.

At the autopsy, the larynx, pharyngeal region and nasal cavities presented nothing abnormal. On opening the trachea, an abscess was found on the posterior face of it, opposite the old

and cicatrized wound of the temporary tracheotomy, performed before. The abscess was as big as a hen's egg and contained creamy pus. The tracheal mucous membrane had on that spot several red and very vascular vegetations, through which, in all probability, the phlegmonous inoculations had taken place. (*Bullet. de la Soc. Centrale.*)

SURGICAL INTERFERENCES IN STRANGLES [*Mr. Darbou*].—It is generally considered that surgical operations are contra-indicated upon animals affected with strangles, the field of the operation becoming a centre through which new local infections can take place and become serious to the patient. There are, however, cases of urgency, when one must resort to an operation which may be of great advantage to the suffering horse. Such is the case for tracheotomy, providing one has not waited too long, when the infection is very severe and that the manipulations are strictly aseptic. The author has saved 60 per cent. of his subjects. He performs the operation as early as possible, and protects the wound with iodoformed gauze. He at the same time resorts to antiseptic fumigations. The puncture of peripharyngeal abscesses has also to be performed some time. The author prefers to make it with the bistouri, instead of the actual cautery. Hyo-vertebrotomy must also be operated in some cases. In the congestive forms of strangles, venesection is also indicated and completed by injections of artificial serum. In three cases of broncho-pneumoniâ (complications of strangles), one of which followed tracheotomy, the author has obtained radical recoveries with intra-tracheal injections of formol at 4 per cent. He made two injections a day of 10 c. c. Improvement set in on the third day. The treatment was kept up for a week. The injection was made between the annular cartilages, very slowly to avoid suffocation and coughing spells.—(*Rev. Veter. and Rec. d'hyg. et milit. med. veter.*)

TWO AUTOPSIES OF CRIBBING HORSES. PATHOGENIC CONSIDERATIONS [*Mr. Breton*].—A nine-years old inveterate cribber dies with colic. At the autopsy internal lesions of severe intestinal congestion are found and nothing else on the other organs.

The retro-pharyngeal lymphatic glands are the seat of a sub-acute inflammation and form a soft tumor, brownish and enveloping more or less the nerves of the region.

A second horse, aged 6 years, also a cribber, dies of an hæmorrhagic congestion of the large intestine. Here again there exist lesions of the lymphatic glands symmetrical and resembling

exactly those of the first horse. The guttural pouches, Eustachian tubes were perfectly sound.

The author gives a great importance to the lesions he has found in those two animals and considers them as the determining causes, the starting point of a kind of reflexes promoting the motrice reaction of cribbing. This reaction is greater than is believed. The pharyngeal muscles, those of the larynx and the œsophagus are probably involved. The extension of the manifestations to the larynx explains the noise accompanying the act of cribbing. But the lesions observed in the glands may also reach the great sympathetic and the pneumogastric and thus would be explained the condition of bad nutrition of cribbers and the colics to which they are subject.—(*Rev. Veter.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

HYPERTROPHY OF THE PROSTATE, CAUSED BY INTESTINAL OBSTRUCTION [*M. E. Tabusso* of the Royal Super, School of Turino].—A dog, 7 years old, since several months has suffered more or less, until recently, when defecation and micturition have stopped entirely. Now he refuses all food, vomits, and since twenty-four hours his condition is critical. There is great prostration, rapid and short respiration, pulse is accelerated and small, temperature 38° C. The breath is fetid, abdomen tympanic, painful on pressure, rectal examination feels as if entering into an empty sac, and reveals against the vertebral column a swelling which by its anatomical position corresponds to the prostate gland. Death takes place after a few hours in collapse.

Post-mortem.—Abdominal viscera congested, gas and semi-fluid, putrefying alimentary substances found in the intestines, which are distended in their entire length. Gastro-intestinal mucous membrane is highly inflamed. In the posterior part of the colon and anterior of the rectum, is a mass of hard fæces, closing entirely the intestinal canal. Back of this, the rectum is empty and squeezed against the sacrum by an hypertrophied prostate, which measures 6 centimeters in length, 4 in width and 3 in thickness. It weighed 58 grammes. There were lesions of

chronic cystitis and the bladder contained some thick, turbid and richly albuminous urine. There was also parenchymatous nephritis in the first stage.—(*Giornale Della R. Socie. Veterin.*)

FILARIASIS OF THE SKIN [by the same].—A pointer slut, has since about two weeks, on the nasal region, peculiar lesions which have remained rebellious to all care of cleanliness and disinfection. The general condition is good and the functions normal. On the nose (which is rather swollen) there is an ulceration as big as a piece of one centime (about a ten-cent piece). This ulceration has at its bottom some bloody, purulent fluid; it has irregular edges and is surrounded with little nodules, from which a little inodorous, bloody and purulent liquid is extracted. This condition exists on the nasal region and nowhere else. The examination of the discharge with the microscope reveals numerous pus corpuscles, hæmaties and embryos of *Filaria immitis* S. *hæmatica canis*. Embryons of filaria were also detected in the blood. A local treatment for the nose of antiseptic washings, solutions of sublimate, incision of the small abscesses. Ichthiol ointment was followed by a rapid cicatrization of the ulceration. The owner would not allow an internal treatment of intravenous injections of collargol and the dog was taken home. At a later date she was reported in good condition, without having had relapse of the trouble of the face.—(*Ibidem.*)

SYMPTOMATIC ASTHMA DUE TO FOREIGN BODY IN THE LARYNX [*Prof. E. Tabusso*, Royal Super. School of Turino].—Since about 15 days, this pointer, aged 3 years, has a capricious appetite, with intermittent attacks of suffocation accompanied with vomiting and cough. His respiration then is short and whistling. The general condition is poor. The dog is thin, and looks as if in constant pain; the visible mucous membranes are congested, temperature normal, respiration costo-abdominal, frequent, accelerated and whistling. There is a little discharge from the nose. Larynx is painful on pressure. There are signs of pulmonary emphysema and of diffused bronchitis. The pulse is small and frequent. Heart hypertrophied. The animal is placed on observation, where he remains until his death, 20 days later. He presented symptoms of asthma, reminding in their manifestations those of the bronchial form of man. There were in general two or three in a day and they would be brought out easily by exciting the dog or making him come out of his kennel. Then he would come out gay as in normal condition, jumping and running about. But in a few minutes he was taken with severe

dyspnœa, with long whistling expiration and rolling of his eyes. Then the clinical scenery became rapidly impressing. His mouth is open, the tongue hangs out, there are irregular and peculiar movements of dilatation of the thorax and abdomen, the intercostal spaces are flattened and percussion gives a tympanic sound. There are loud, strong, sibilant murmurs at auscultation, general tremblings of the body, the front legs are stiff, the head and neck extended, the veins are prominent, the mucous membranes cyanotic, the pulse accelerated, almost imperceptible, beatings of the heart are tumultuous. The attack reaches its acme in a few minutes, when the symptoms gradually disappear, leaving however a respiration irregular and whistling. When the attacks come by themselves, they are less severe than when promoted artificially. After the attack, there is a dry, short cough accompanied with vomiting of food and of mucus, frothy and greenish in color.

Besides these, it was observed that deglutition was somewhat difficult. On that account, and because of the great sensibility of the larynx on palpation, this organ was examined several times but unfortunately *not with the laryngoscope*, for fear of giving rise to an attack of asthma. Nothing out of the way was observed in the other functions. A diagnosis of symptomatic asthma of primitive chronic bronchitic origin, and possibly of disturbance of cardiac nature was made, and the animal submitted to general treatment of his symptoms. All without results until the animal was finally destroyed.

Post-mortem.—Lesions found: Hypertrophy of the heart, emphysematous lungs, lesions of dry bronchitis. Then more on account of the method of the author in making autopsies than for special researches, the opening of the larynx was made and then only was the cause of the disease found. In the inferior part of the larynx under the vocal cords, entirely concealed to the internal examination of the larynx, and situated across the glottis, there was a piece of bone, portion of a spinous process of a vertebrae, which was fixed into the right vocal cord, which was thickened and ulcerated. The laryngeal mucous membrane was thick, granular and in a state of gangrene at the point where the bone rested on it. The laryngeal muscles were also hypertrophied. All the other organs were healthy.—(*Giorn. Della R. Soc. Veter. Italiana.*)

CONGENITAL ATRESIA OF THE URETER WITH CYSTIC ATROPHY OF A KIDNEY [by the same].—A hunting dog, 3 years of

age, has always done his work well and been in perfect condition except that now and then he had incontinence of urine. Since 4 or 5 days his general aspect has changed; he is dull and depressed, has lost his energy, has no appetite and shows signs of paralysis of one hind leg. In 24 hours, these symptoms assume a more severe character, general paralysis takes place and the dog dies a few hours after.

Post-mortem.—All the viscera are congested. There are nervous lesions consisting in those of adhesive pachymeningitis and extensive hyperæmia of the meninges. Abdominal lesions. All the organs congested. Liver and spleen hypertrophied. The urinary apparatus shows lesions which the author says he has not seen described in any work of veterinary medicine. The right kidney is atrophied, weighing only 5 grammes. It is represented by a single cyst or cavity enveloped by a fibrous and calcareous structure, and without traces of renal tissue. The cyst is empty and communicates with a ureter 30 centimeters long, 28 of which have a canal and the 2 last, implanted on the bladder form only a thick fibrous cord without canal and smaller in diameter than the other part. The left kidney is congested, hypertrophied and weighs 84 grammes. It exhibits lesions of diffused parenchymatous nephritis. The ureter of that side is normal. The bladder has its walls thick and is the seat of chronic hæmorrhagic cystitis. It shows only one opening for the ureter of the left side. The dog had also chronic prostatitis.—(*Ibidem.*)

GERMAN REVIEW.

By J. P. O'LEARY, V.M.D., Bureau of Animal Industry, Buffalo, N. Y.

INVESTIGATIONS CONCERNING THE PATHOGENESIS OF GLANDERS [*Prof. Dr. Hutyra, Budapest*].—After it had been established by Nocard, Schütz, Dedjulin, McFadyean, and more recently by Bonome, that glanders infection can take place through the intestinal tract, the question still remains to be decided where the primary infecting process takes place and whether the glandered lung in such cases is of a primary or secondary nature. Furthermore the histogenesis of the initial disease process is glandered lungs is still in dispute. As Schütz, in opposition to the

views of Nocard, who defined the young glanders nodule as a caruncle, is of the opinion that this growth is a product of a miliary fibrinous pneumonia and consequently a hepatization nodule. Hutyra has undertaken, for the solution of this question, extensive experiments, on horses, asses and guinea pigs, by feeding and inhalation methods.

Experiment No. 1.—The inhalation of sprayed bouillon cultures. Result: Acute glanders in the inferior part of the nasal chamber, two pneumonic nodes in the lungs.

Experiment No. 2.—Inhalation of sprayed bouillon cultures. Result: Acute glanders in the inferior portion of the nasal cavity, pneumonic nodes and miliary nodules in the lungs.

Experiment No. 3.—Insufflation of nasal discharge, dried in daylight. Result: Negative.

Experiment No. 4.—Insufflation of nasal discharge dried in darkness. Result: Negative.

Experiment No. 5.—Spraying a glanders culture direct into the trachea. Result: Primary glanders of the lungs; secondary in the inferior portion of the nasal chamber.

Experiment No. 6.—Administering a dose from a potato culture in the drinking water. Result: Pulmonary glanders, glanders nodules in the skin of the lips and swelling of the pharyngeal lymph glands.

Experiment No. 7.—A potato culture given in a gelatine capsule per os. Result: Glanders of the lungs and spleen, the lips and pharyngeal lymph glands.

Experiment No. 8.—A potato culture given in a keratinized gelatine capsule, per os. Result: Pulmonary glanders.

Experiment No. 9.—0.02 gramme of potato culture given in a gelatine capsule, per os. Result: Punctiform hæmorrhagic nodes and nodules in the lungs.

Experiment No. 10.—0.01 gramme of the deposit from a potato culture given in a gelatine capsule per os. Result: Glanders nodules in the lungs.

Experiment No. 11.—0.02 gramme of the deposit from a potato culture given in a double gelatine capsule per os. Result: two gray transparent nodules and several large pneumonic nodes in the lungs.

Experiment No. 12.—0.01 gramme of the deposit from a potato culture given in a gelatine capsule per os. Result: acute septicæmia.

Experiment No. 13.—0.02 gramme of a glanders culture given in gelatine capsule; burst in the mouth. Result: Glanders infection of the pharyngeal glands, mouth and ulcers of the larynx.

The author then describes in detail the result of his investigations relative to the histogenesis of the nodules. That glanders is easily produced by feeding with the glanders virus; that intestinal infection with small quantities of virus results directly in a general infection of the blood, and in connection a localization of the process in the lungs, this organ being particularly susceptible, as a result, primary pulmonary glanders; that the virus conveyed by the lymph into the blood circulation of the lungs produces there a small-celled infiltration of the vessel walls and the perivascular connective tissues, as a result we find tubercle-like, gray, transparent, granulated nodules in the peribronchial connective tissue and hepatization nodules in the alveolar pulmonary tissue. As the disease progresses the catarrhal pneumonic character becomes more prominent, whilst at the same time thrombi form in the blood-vessels with cellular infiltration of their walls. The inhalation of air impregnated with glanders bacilli results as a rule only in acute infection of the extreme lower part of the nasal cavity, which later may develop through metastasis into pulmonary glanders. Infection through the trachea produces a catarrhal pneumonic condition of the lungs, due to the dissemination of the glanders nodules throughout the organ. Natural infection takes place usually by way of the digestive tract, whilst infection by way of the air passages through the inhalation of the virus under natural conditions is scarcely worthy of mention. Nasal glanders, also farcy, are to be considered as secondary processes to the primary affection of the internal organs, and particularly the lungs.

An acute constitutional disturbance with intermitting fever, under certain conditions, where the possibility of glanders infection exists, confirms the suspicion that infection has already taken place, especially when, in the meantime, also a temporary serous nasal discharge with slight swelling of the pharyngeal glands is observed.—*Zeitschrift für Tiermedizin*, xi. Bd., 1 H.

“I STARTED in my business as a beginner.” “And I,” said the racing man, “began as a starter.”—(*Louisville Courier-Journal*.)

CORRESPONDENCE.

VETERINARY EDUCATION.

Washington, D. C., May 12, 1908.

The Editors of the American Veterinary Review:

GENTLEMEN—The honored name of George Washington is to have a sundown veterinary school tacked on to it! Think of all that revered name implies! Then think of what this new establishment portends!

Those who possess true ideals of veterinary education and bewail its present status on this continent believe that a veterinary institution of learning should attract students by virtue of its superior equipment and the mental attainments of its professional staff. But what are we to think of an institution that starts its career with an offering from the man who is announced as its "Dean" of "\$5 per" as an inducement to others to gather susceptible young men into its folds?

On the 2d day of March last, Dr. H. H. Newcomb, a graduate of McGill University, informed me that he had received a verbal offer from D. E. Buckingham, V.M.D., a graduate of the University of Pennsylvania, and who is announced as the "Dean" of the new center of learning, of hard cash for the procurement of students. I could not help but think that Dr. Newcomb had misunderstood. We decided to endeavor to obtain confirmation of the offer and the following letter was composed and mailed to the new "Dean":

" Union Station,
" Washington, D. C.,
" 2d March, '08.

" DEAR DOCTOR—I am just starting out on the road through Virginia and other points south and think this might be a favorable field from which to draw students for the new college. When you offered to remunerate me for procuring students you did not state how much per student you could afford to pay.

If you will let me know how much this service is worth, and if the offer is attractive, I will proceed to get busy.

"Yours truly,

"To Dr. D. E. BUCKINGHAM, "H. H. NEWCOMB,
"Washington, D. C." "Address c/o The Jefferson,
"Richmond, Va.

A fisherman who aims to catch fish generally uses an alluring bait which the fish are likely to bite at with avidity.

As we anticipated, we were soon in possession of the following communication from the new "Dean":

"Hospital for Animals,
"2113-15 Fourteenth Street, n.w.,
"Washington, D. C.,

"D. E. BUCKINGHAM, V.M.D.,
"Proprietor.

"March 5, 1908.

"DEAR DOCTOR NEWCOMB—Yours at hand and contents noted. Would be glad to have you talk our school to intending veterinary students. Will be the Veterinary College George Washington University. Tuition, \$100; seven months course in evening. Will mail catalogues to all susceptible young men whose names you mail us. Will pay you \$5 per student after he matriculates and states you spoke to him. Be sure to give us list for mailing, except students at Agricultural Colleges, where we are already working. Good luck to you. More data with catalogues. Good luck. Sincerely yours,

"D. E. BUCKINGHAM."

God help the veterinary profession!

Respectfully yours,
CECIL FRENCH.

THE REAL "KING OF STEERS."

Shelburne Falls, Mass., May 25, 1908.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRs—On page 543 of the January REVIEW there is an account of a steer called in the article "the king of steers," giving the weight at 3,400 lbs. The article goes on to say that

this wonderfully large animal "had been admired by millions of circus goers of two continents." The REVIEW cites the *Cincinnati Post* as authority for the above.

Jas. D. Avery of Buckland, Mass., Franklin county, a leading farmer and lumber dealer, also county commissioner and chairman of Board of Selectmen, owns an ox 8 or 9 years old which tips the scales at 4,700 lbs.

A few days ago I was at Mr. Avery's barn and took the opportunity to take some measurements of this immense animal as follows:

Height at shoulder 6 feet one inch.

Girth just behind fore legs 10 feet one inch.

Length from nose to tip of tail 17 feet.

Distance across hips 3 feet 2 inches.

Mr. Avery had a mate to this great ox which equalled it in size and weight which he had the misfortune to lose by sickness last spring.

This wonderful pair of cattle had been exhibited all through the New England and Middle states by Mr. Avery, netting him a large amount of money. Three years ago, at the Brattleboro, Vermont Cattle Show and Fair, they hauled on a stone drag over 6 tons of granite blocks, easily winning first prize for draft cattle.

Yours truly,

W. G. RICKETT,

Veterinarian.

NEW YORK city gets a portion of its milk supply from as far as four hundred miles distant, and the product of 86,000 farms is drawn on to meet its daily wants.

PURE-BRED STALLIONS IN WISCONSIN.—Dr. A. S. Alexander, professor of veterinary science in the College of Agriculture at the University of Wisconsin, and who has charge of the department of horse-breeding, reports that a considerable number of pure-bred registered stallions have recently been brought into that state and licensed for public service. This is an encouraging indication of improvement in the horse-breeding operations of Wisconsin, and the right step toward the eventual elimination of the numerous grade stallions which are retarding the advancement of the horse-breeding industry.

BIBLIOGRAPHY.

FOODS AND THEIR ADULTERATION. Origin, manufacture and composition of food products, description of common adulterations, food standards and national food laws and regulations. By Harvey W. Wiley, M. D., Ph. D. With eleven colored plates and eighty-six other illustrations. Philadelphia, P. Blackiston's Sons & Co., 1907. Octavo, 625, pp. \$4.00 net.

When a scientific man buys a book he chooses, by preference, a work by the greatest authority in the field of which he wishes to get knowledge. The book in review, "Foods and Their Adulteration," is from the pen of the foremost human food specialist in the United States, none other than Dr. Harvey W. Wiley, Chief, at Washington, of the Bureau of Chemistry, Department of Agriculture. What Dr. D. E. Salmon was to the Bureau of Animal Industry, Department of Agriculture, Dr. Wiley is to the Bureau of Chemistry. In the course of a score of years Dr. Salmon organized and developed his Bureau to a high pitch of efficiency. Dr. Wiley is now doing the same thing for the Bureau of Chemistry. A work from such a man, of 625 compact, authoritative pages, covering all manner of human foods, their composition, adulterations and tests for them, should be, and sooner or later will be, perused by every member of the profession interested in sanitary human food manufacture.

The parts of the manual, ten in all, severally contain masses of information on (1) meats and meat products; (2) poultry, eggs and game birds; (3) fish foods; (4) milk, milk products and oleomargarine; (5) cereal foods; (6) vegetables, condiments, fruits; (7) vegetable oils, fats and nuts; (8) fungi as foods; (9) sugar, syrup, confectionery and honey; (10) infants' food and invalids' foods. The work closes with our national food standards, rules and regulations governing food manufacture enforced by the Bureaus of Chemistry and Animal Industry, and the government food inspection decisions.

It so happens that a large share of the work of the administration of local ordinances, state and national laws on food manufacture, has fallen into the hands of the veterinary profession, there to remain. The busy administrator of the law, whether a man of erudition in industrial chemistry or not, will need to have on his desk Dr. Wiley's "Foods and Their Adulteration," just the same as he would have to have there his Ostertag's "Meat Inspection"—each among the highest living authorities in each field.

IN MEMORIAM OF ROSCOE BELL.

By R. A. STOUTE, D. V. S., Barbadoes, West Indies.

The March REVIEW has made me sad,
In the record that you had
To make, of the death of Roscoe Bell.

I knew not the man as face to face,
But his greatness of mind one could trace,
While reading the writings of Roscoe Bell.

Among the writers, grand and true,
Writers for the AMERICAN REVIEW,
Found in the front was Roscoe Bell.

He has stood to the front in days of yore,
And scattered his gems for the rich and poor,
His gems, the outcome of thought of Roscoe Bell.

What he meant he said, and said it well;
So that one could read, and then could tell,
Of the truths that were taught by Roscoe Bell.

But as he has left this world of woe,
To a brighter and happier land to go,
Our loss has been the gain of Roscoe Bell.

Through the pages of our loved REVIEW,
We must bid our dearest friend adieu,
The REVIEW so loved by Roscoe Bell.

His mantle has fallen on Herbert Lowe,
So manfully onward the work will go,
The work so loved by Lowe and Bell.

I must welcome my friend, W. H. L.,
(Surely he remembers me quite well,)
He will be as welcome as Roscoe Bell.

OBITUARY.

EDWIN A. PARSONS, D. V. S.

Edwin A. Parsons, D.V.S., died at his home in New York City, on April 7, 1908, of Bright's disease, in his 50th year. Dr. Parsons was born in Hartford, Conn., June, 1858. He graduated from the Columbia Veterinary College, New York City, in 1884, and has since that time enjoyed a lucrative practice. He was at one time connected with the teaching staff of the New York College of Veterinary Surgeons. The Doctor leaves a widow, a son and three daughters.

RALPH OGLE, M. R. C. V. S. (DUBLIN).

Ralph Ogle, M. R. C. V. S., one of the pioneer veterinarians of New York City, where he had been practicing since 1851, died April 2, 1908, at the grand old age of 89 years. He was born in Morningtown, County Meath, Ireland, in 1819, and came to this country in 1851 and immediately began the practice of veterinary medicine, which he continued with unusual success until he was 80 years old, when he retired. He numbered many of the prominent families and horse-owners in and around New York City as his clients. He was also quite a horse-man himself, and at one time had a stable of runners and trotters. Dr. Thomas Ogle, also a veterinary practitioner of New York City, is his oldest son, who is the father of Thomas Ogle, Jr., also a veterinarian. This aged veterinarian was the father of 21 children, and there is a large representation of grandchildren and great grandchildren. He was a prominent Mason.

THE Agricultural Department statistics show an increase in 1907 over 1906 of 297,725 horses and mules in the United States. There are 8,237,449 more harness-using animals in the country now than there were eight years ago, notwithstanding the introduction of motor vehicles.

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was held January 8, 1908, in the Merchants' Hotel, St. Paul, and was called to order at 1.30 p. m., with President McGillivray in the chair.

Roll call showed fifty-five members present.

Dr. McGillivray then gave his annual address.

Gentlemen of the Association:

It is a source of pleasure to me to greet so many co-workers at this our eleventh annual meeting. Your coming here shows not only your interest in this your association, but manifests the high regard in which you hold the welfare of all matters pertaining to the advancement of our calling.

Our organization was founded for the purpose of furthering all things looking to the promotion of the general good of our profession, and it is because it has kept this purpose plainly in view that our association owes its successful growth, and with a continuation of this aim we cannot fail in our prediction that as an association we shall continue to prosper.

Our general good is promoted by this organization, in that we can and do annually get together in personal contact with each other, become acquainted with those who are like laborers for the same ends, intermingle socially, exchange ideas in groups and in a body concerning subjects that are of vital interest to us professionally, and take home with us a better understanding of and more enthusiasm in the various departments of our work, a higher ideal of our profession and a new consecration to our important duties.

But more than this, our general good is promoted by this association from a professional standpoint, in that we have as a body, through its organized strength and through its legislative committee, secured praiseworthy and effective state legislation looking to the material advancement of our profession. And I take great pleasure on this occasion in extending for this association to our legislative committee hearty congratulations and thanks for their effective work before the legislature of this state

last winter. It was through their untiring energy that chapter 419 of the General Laws of 1907, the same being an act entitled: "An Act to regulate the practice of veterinary medicine, surgery and dentistry," was finally passed and became a law. You no doubt are all familiar with the terms of that law, and you gentlemen can all look with pride upon it and say that no State in this Union has a better law on that subject. It is a law that we have needed for years. It is a law that gives to us individually a higher standing, that insures reliable service to the public and places our profession upon the plane it deserves. Again I say, I warmly congratulate our legislative committee.

The act passed last winter regulating the public service of stallions is also a commendable law. While it may have some defects, and it is doubtless true that in some instances licenses are denied for some stallions on account of some defects which disqualify them under the law, which they do not transmit, yet in general the statute is a good one, and it has not yet been in operation long enough to disclose wherein, if at all, any amendment is necessary.

It is my belief that every man in this association should take some interest in politics in his locality. I believe this because there may be many laws that would be to the general good that we would be particularly interested in that should be passed in the future, and I believe it because we certainly want to maintain on the statute book the good in the laws as they now exist. A man who is dormant politically has and can have no material influence with the members of the legislature from his district, and one who is active in politics, although his ideas are wrong and even dangerous, will secure the support of his policies from the legislative members whom he assists in electing. I do not mean that we should be obnoxiously partisan, nor that we should enter politics for personal gain or for office for ourselves, but that we should be identified in the support of those candidates to whom, if elected, we could approach with a feeling that we had a political and personal right to be heard by them and apply for their support for such measures as would inure to our mutual welfare.

Of course the foundation of a citizen's influence in the community in which he lives is his own personality. To be influential politically he must be thoroughly honest, keep his debts paid and live in such a way that his neighbors will say, in speaking of him, "There is a good man." Such a citizen as that,

who manifests political activity properly tempered, can be most influential with a member of the legislature whom he has not been afraid to openly support, and such a citizen can secure from that legislator hearty support of all measures that will be to our common good, and that citizen, too, will have most respectful attention from any legislator against whom he may have actively worked.

I trust, gentlemen, that you will see to it that you are in a position to effectively interview any officer of the law in your district and command his attention, if not his energetic support, upon any measure that is to our mutual interest.

In closing, I desire to again express my appreciation of your presence here, and to thank all the officers and committees and members of this association for their good work during the past year, and to wish to each of you and to this association continued success and prosperity.

Dr. McGillivray then called for the report "On Colleges," by the committee, Dr. Leech, chairman.

Dr. LEECH—Mr. President, as chairman of that committee, I have not made out any report and do not know that there is any special report to make since the last meeting. The conditions are about the same as at that time. The only real change that there is in the colleges since that time has been with reference to the Kansas City School. That college has inaugurated a special branch in stock judging and agricultural work, but while they have practically enlarged their course they have not extended their time. The time still remains three years. The report of the last American Association was that the Grand Rapids school was now on a three-year basis, although there was some question as to whether it was a whitewashed report or not. I believe we should insist, as state organizations, that all colleges and school who return their reports, or from which we receive reports, should give us a report that is absolutely unbiased and that that report should be more thorough and searching. The report should be made upon the best of knowledge and without fear or favor.

The only drawback that I can see now that is going to confront us, and that will have to be considered, in as much as now the reports that come to us usually, and which we rely upon, come through the college faculties and examining boards of this country. We get that report and accept it as being final, and we are not sure about the whitewash. They are advocating the

installation of a course in stock judging and agriculture throughout all the colleges as an absolute necessity. If so, I see no reason why the college course should not be extended one term to cover that course. Any one taking that course in the schools of agriculture must put in two years to get the short course, and in order to comply with this necessity, I do not think we can consistently crowd the course in stock judging and agricultural work into our colleges in three years and be more beneficial than in two years of veterinary work. As I view it there is going to be an absolute necessity that all colleges, if this branch is adopted, will have to come under a four-year course, and I think if that is the case we should all work with that object in view, in order to bring that course up to the standard where it ought to be, because a short course of one year in a veterinary college does not cover the same ground as a short course in agricultural colleges, which calls for two years for the same work. I think we ought, in justice to ourselves, if they are going to inaugurate that course, insist that we shall have four-year college courses in all schools.

Dr. MCGILLIVRAY—Did Dr. Leech report anything on Toronto College?

Dr. LEECH—The Toronto school is now under the three-year course, run by the government. I reported that at the last meeting.

Dr. MACK—In regard to the Ontario school, is that of six months?

Dr. LEECH—The announcement that was made by the report read at Kansas City was that it was to be taken up by the Provincial government and run as a university, and that the course would comprise a three-year course of six months each.

Dr. Beebe was called on to report on Bacteriology.

Dr. BEEBE—I think one of the latest things that has come up in the line of bacteriology is the cuti-reaction for tuberculosis. This has proven quite satisfactory in the human subject for the testing of suspected tuberculous individuals. It is used instead of the subcutaneous injection of tuberculin. The way it is used is to scarify a small place on the skin and apply a strong solution of concentrated tuberculin; that is Koch's concentrated tuberculin diluted 50 per cent. After twenty-four hours there will be an oedematous patch at that place. If the patient is tuberculous the skin is somewhat thickened and red, and this reaction subsides in about three or four days. This has proven quite

satisfactory in the human subject, and Dr. Vallee, in France, has used it on cattle. It has proven very satisfactory in the few cases he has tried. He has only tried it on 75 animals, but the results were the same as those with tuberculin injected subcutaneously.

Another new method is by dropping two or three drops of the tuberculin into the eye, and if the subject is tuberculous the eye becomes very much inflamed and the pupil becomes contracted and this reaction subsides after about three or four days. This would not be very applicable in veterinary medicine, but is satisfactory in the human medicine. Perhaps after some little time this method might be so perfected that veterinarians can use it.

There has recently been a bulletin published by the Bureau of Animal Industry, by Schroeder & Mohler, on the Tuberculin Testing of Hogs. They have conducted a large series of tests upon hogs to see if they would give a good reaction to tuberculin. They have found out that the temperature in the hog is very variable. In fact, if the hog is exercised a very little the temperature will go up two or three degrees in a very few minutes. They have crated the hogs so that they cannot move about, and have taken temperatures and found they could keep them from fluctuating by this method. In their experiments they were able to detect tuberculosis in 97 per cent. of those tested. In the others they got a slight reaction, but not enough to consider typical.

In the last *Journal of Comparative Pathology and Therapeutics* there is an article upon the germinative tuberculosis. There is merely a review from one of the German journals. They injected about 5 c. c. of the culture of tubercle bacilli in the testicles of goats and then allowed the goats to serve the females and found the kids from this sire were all tuberculous and dams were found to be non-tuberculous by post-mortem examinations, so that tuberculosis must have been transmitted from the ewe. There has been a great deal of controversy over this subject, and I think this is the first real satisfactory experiment performed along this line.

There is one more thing that is of particular interest and that is that Dr. Ostertag has been able to verify the work of Dorset upon hog cholera. They have been able to find the virus of hog cholera passed through a clay filter. That verifies the theory that hog cholera is due to an ultra-microscopical organism and not to hog cholera bacillus.

Dr. MCGILLIVRAY—We will call on Dr. McDonald for his report on Infectious Diseases.

Dr. McDonald presented the following report:

REPORT FOR THE LAST SIX MONTHS OF 1907.

Tuberculosis—

During the past six months there have been 8,950 cattle tested, of which number 955 reacted.

579 cattle were tested at South St. Paul, of which number 12 reacted.

Hog Cholera—

During the past six months there were 193 farms in 19 counties where hog cholera existed. At the time of report being sent into the office 3,472 had died, 1,212 were sick at the time. The total number in the herds on these 193 farms were 7,711.

Glanders—

Number of horses inspected.....	1,201	
Killed on inspection.....		43
Tested after inspection.....	853	
Reacted when tested.....	223	
Killed after test.....		147
Quarantined	132	
Reinspected	296	
Killed on reinspection.....		93
		<hr/>
Total killed		283

Dr. MCGILLIVRAY—We will call on Dr. Price for his report on Surgery.

Dr. Price then presented the following report:

SURGERY.

The Drs. Merillat of Chicago call attention to some items selected from the Practical Medical Series of the *Year Book*, which are of interest to the veterinary surgeon, in the December VETERINARY REVIEW, and which I here call attention to.

General anæsthesia by means of chloroform being the cause of twice the number of deaths as compared with ether. That with ether anæsthetic pulmonary and other troubles are apt to prove serious and even fatal. My personal experience as a subject of ether anæsthesia lasting four and one-half hours con-

vinces me that the effects of etherization continued for such a long period produces permanent results of a debilitating nature on the system. The operation itself, for removal of varicose veins of both lower limbs, was eminently successful and was followed by primary healing, not a single suture, of about 100, having any indication whatsoever of pus, and the thermometer registered a straight line from start to finish, there being only one rise of .2 degrees Fahrenheit immediately following the operation. Yet I have never felt the same vim, nervous energy, etc., as previous to the anæsthesia. It is my belief that such protracted anæsthesia produces permanent enlargement of the neurons, in my case amounting to removal of the varicosities of the limbs, but productive of varicosities of the dendrites of the brain tissue, which indirectly themselves cause other organs to become debilitated, especially the liver. This organ, by improper oxidation processes of waste tissue products, in turn causes irritation of the kidneys and other organs, thus setting up a complete systemic disturbance, which is never completely overcome. From the Germans, through Prof. Sendrail, we hear of a new method of producing general anæsthesia by the intraperitoneal injection of a 10 per cent. solution of chloral hydrate in proportion of 1 gramme of chloral hydrate to 10 kilogrammes body weight, amounting in the horse to from 25 to 75 grammes, and in the dog from 2 to 12 grammes. In American weight it would be 16 to 18 drachms of chloral hydrate for horses, and one-half to three drachms for dogs, adding ten times as much water for making the solution. In ten minutes the animal lays down and is soon sleeping and insensible, there being no primary stages of excitement. The surgical anæsthesia lasts half an hour or longer, yet the animal may remain lying much longer, perhaps an hour without moving. Soon he staggers to his feet and gradually regains consciousness, fully recovering in a few hours.

Pilocarpine acts as an antidote for overdoses of over-sensibility by eliminating it from the system. Small doses of strychnia should also prove suitable, given hypodermically.

Chloral is a base-dilator, hence it is advisable to secure blood vessels during the progress of the operation when it is necessary to divide them.

For local anæsthesia alpqui is recommended by Dr. A. Dittmer, it being ten times less poisonous and twice as rapid in its action as compared with cocaine. It further can be sterilized and retains its strength for a very long time. It is less expensive

than cocaine. Alpqui, however, produces a slight hyperæmia. Dittmer prescribes usually a 3 per cent. solution.

Magnesium sulphate in solution has been mentioned as the latest local anæsthetic, coming from the Rockefeller New York Institution.

Surgical Dressings—

Bicarbonate of soda is highly recommended as a wound dressing, both dry and in solution. Hot solutions, 2 ounces to the quart, are injected into the wounds, and dry soda is powdered over them, followed by suitable dressings.

Iodin is credited, in the form of pure crystals, with higher antiseptic potency than any ordinary dry dressing. It is dissolved in ether and injected into the wound, the ether evaporating leaves crystals of iodine all over the parts. All blood must be removed before making the application.

Crystals of boric acid have been used for such dressings in my practice for many years with uniform satisfaction.

In opacities of the cornea a 6 per cent. solution of ammonium chloride is recommended. Personally, I have found ammonium chloride the most satisfactory solvent for fibrinous effusions and deposits. The *Year Book* also gives a varnish for wound dressings, consisting of

50 parts chloroform.

20 parts mastic.

A few drops of linseed oil.

The non-sensibility of the internal organs is referred to, but has been known to those who have practiced canine abdominal surgery for many years. The tissues beneath the skin, excepting nerve tissue itself, seems insensitive, or only very slightly so, in comparison to the skin itself.

Incising the skin at an angle in order not to produce scars is again called attention to.

The beneficial effects of magnesium sulphate in tetanus is stated to have worked marvels. It is given in solution, 3 drachms to the pint, directly into the jugulars.

Its action is undoubtedly one of oxidation, this destroying the toxin, rendering the latter inert and suitable for excretion. For some years I have been experimenting with both the magnesium and the sodium sulphate in azoturia with this object in view, and have had very satisfactory results.

In pedal surgery great fear seems to be experienced in all operations extending beneath the epidermis and its continuation, the horny box of the hoofs. If the same principles were applied to operations on these parts as on other parts of the body success would be almost universal.

In quitters, make a dependent opening, pack the wound (after curetting thoroughly all the sinuses) with gauze or wicking, saturated with a strong solution, 1 to 3, of any caustic, bandage and leave in for five to fifteen days. Put the animal to work any time after the fifth day and use further packing if necessary. In nail-punctured wounds penetrating the tendons or their aponeuroses, open by longitudinal incision, disinfect and keep open until pus formation ceases. Use antiseptic dry dressings, covering with absorbent cotton, oakum and suitable bandages to exclude dirt, etc.

Recently I had two cases of severe lameness following punctured wounds of the hoof. In one the flexor pedis perforans tendon was thickened in the hollow of the heel. With a small one-quarter inch sharp-pointed bistoury I cut through the skin and tendon, being guided as to depth by a probe, and continued the incision until there was no resistance, then the wound was washed out with bichloride and peroxide solution, dusted with boracic crystals and covered with absorbent cotton and a suitable bandage. After a few days improvement was reported, but a week later the case was as bad as ever. Concluding that closing of the opening had occurred, the animal was brought to my infirmary, where it was found as surmised. The wound was reopened and rapid recovery followed.

The second case was in the toe of the hoof. This one was relieved by a longitudinal incision, made with an ordinary surgeon's bone saw, through the wall until the pus cavity was reached. Two months had elapsed since the receipt of the injury before lameness of a severe character developed. Two days after the operation the horse was ready for work. No relapse occurred up to the present, now three months, in either case.

For some years, as many of you are aware, I have been experimenting with the grafting of glands from healthy dogs to diseased ones, with a view of overcoming the toxic condition resulting from injured or diseased glands. The operation is very simple, merely exercising aseptic precautions in the removal and the insertion or grafting. I find the abdominal cavity

most suitable in dogs, as they cannot readily reach the wound by scratching, licking or biting, as they can in other locations, when done subcutaneously. After securing the desired gland, immerse it in warm sterile saline solution while preparing the patient. Make an incision into the abdomen, cover the wound with sterile cloth, cut through the cloth, draw out a piece of omentum, scrape it slightly to cause adhesion, suture the gland in place, surrounding it with omentum and replace the whole. The gland may also be sutured on to the parietal peritoneum if desired. Being a very active practitioner, little time has been at my disposal to fully carry out my experiments. Yet I have had evidently beneficial results in every case. My first subject was a dejected, enervated, rheumatic, eczematous setter, with goitre of long standing. Though an unexcelled hunting dog, he was considered worn out and sent to be chloroformed. Getting the owner's consent to keep the dog, I grafted a thyroid abdominally. After a few days evident illness, recovery was rapid, and in a short period the symptoms of decrepitude, rheumatism, etc., began to disappear. Later he became playful and acted like a pup, though at least ten or eleven years old. The owner and I hunted with this dog for birds for four successive years. He found nine-tenths of the birds and the bags were all good ones.

Dr. AMOS (in the chair)—We will now hear the report on Finances by Dr. ANNAND.

Dr. ANNAND—I take it for granted that the treasurer's report has been given, and I find nothing here that would raise any suspicion that anything is wrong, and consequently approve the report.

I think, possibly, as chairman of the Finance Committee, although I have no report to make, that I was appointed as a committee of one to examine the report of the state examining board. I think nearly every one here takes the AMERICAN VETERINARY REVIEW, and you have the report there as given at Mankato, with possibly a few little exceptions, which was to a great extent due to misunderstanding at the bank, only just a few cents one way or the other, which was easily corrected when Dr. Reynolds and I got together at the First National Bank. The report as printed in the AMERICAN VETERINARY REVIEW is approved.

Dr. MCGILLIVRAY—What will you do with the report?

Dr. J. N. GOULD—I move that the report be accepted as approved.

The motion was seconded and carried.

Dr. MCGILLIVRAY—The next is the application for new members.

Dr. Mack read the following applications:

J. A. Scott, Waverly, C. V. C., 1893. Vouchers, J. N. Gould and T. Falconer.

O. H. Titterud, Constance, Ontario Veterinary College and C. V. C., 1905. Vouchers, C. A. Mack and R. J. Coffeen.

F. E. Judd, Windom, Western Veterinary College, 1901. Vouchers, J. N. Gould and C. S. Shore.

C. Cueff, Raleigh, N. D. Copenhagen, 1906. Vouchers, C. A. Mack and L. Hay.

C. Anderson, St. James, Royal Veterinary College, Copenhagen, 1892. Vouchers, C. A. Mack and M. H. Reynolds.

Dr. McGillivray then asked the applicants to please retire until the association had passed on the applications.

The following were elected to become members of this association:

Doctors J. A. Scott, A. H. Titterud, F. E. Judd, and Dr. C. Cueff as an associate member.

Election of Officers.

The election of officers resulted as follows:

President—Dr. W. Amos.

First Vice-President—Dr. C. E. Colton.

Second Vice-President—Dr. A. F. Lees.

Secretary and Treasurer—Dr. C. A. Mack.

Board of Directors—Dr. C. E. Leech, Dr. J. N. Gould, Dr. R. La Pointe, Dr. W. Amos, Dr. C. A. Mack.

The meeting then adjourned until 7.30 p. m.

The meeting again convened at 8 p. m. with President McGillivray in the chair, when the following papers were read and discussed:

“Ruptured Bursa,” by Dr. Holton (see Reports of Cases).

“Mange,” by Dr. Ilstrup.

“Rabies,” by Dr. Humphrey, M. D.

“Hæmoglobin,” Dr. Lipp.

“The Work of Eradicating Tuberculosis from the Herds of the State,” by Dr. Whitcomb.

“Disinfection and Disinfectants,” by Dr. Leech.

Dr. Reynolds then presented the report of the State Examining Board, which is as follows:

SECRETARY'S REPORT FOR THE SEMI-ANNUAL PERIOD ENDING
JANUARY 6, 1908, OF THE MINNESOTA STATE VETER-
INARY EXAMINING BOARD TO THE MINNESOTA STATE
VETERINARY MEDICAL ASSOCIATION:

Legal Matters—During this period we have had one important ruling from the attorney general's office on a question raised by the county attorney at Wright County, whom we were urging to institute prosecution proceedings. This opinion is under date of September 4, 1907, and was rendered by George T. Simpson, assistant attorney general. The question submitted by your secretary was as follows:

"Section 5, chapter 419, Laws of 1907, state that this section shall not apply to the dehorning of cattle or the castration of animals, *nor shall it prevent anyone from rendering necessary assistance in the treatment of any domestic animal when the attendance of an authorized veterinarian cannot be procured without great inconvenience or risk.*"

"Can this be construed to mean that if an unlicensed man, who has had a little experience in veterinary work, lives nearer to a case needing immediate attention than a licensed man, that the unlicensed man may take care of the case; *i. e.*, do veterinary practice, charge and collect for the same without violating the law? Would it be necessary to show in court that the defendant was not more accessible than some licensed man?"

Mr. Simpson's reply was as follows:

"* * * That section simply means this: That if an unlicensed person renders assistance and should be arrested and charged under the act with a violation of the same, a *prima facie* case would be made out by proving that such assistance had been rendered and that the person was not licensed. Thereupon, if such person was able to prove that it was a case where 'the attendance of an authorized veterinarian could not be procured without great inconvenience or risk,' such evidence would be admissible and would go to the jury for the jury to judge of its weight, and if the jury should find that such was the fact, such person would be entitled to his discharge. Each case would, therefore, necessarily stand upon its own facts and no general line of demarkation can be laid down."

We have very recently had another opinion from assistant attorney general George T. Simpson, under date of January 3, 1908. This concerns the change in method of appointment to board membership.

Under date of January 2, 1908, I called Mr. Simpson's attention to the fact that the new law provides for a State Veterinary Examining Board, consisting of five veterinarians of specified qualification, each to be appointed for a term of five years. One vacancy occurs each year which is to be filled by appointment.

The first board appointed under this new law is to consist of five members of whom there shall be appointed one for one year, one for two years, one for three years and one for four years, and one for five years. The law previously in force provided for a board to consist of five members to be appointed by the governor, each for a term of two years and until their successors are appointed and qualified.

Mr. Simpson's attention was called to the fact that no appointment had been made under the new law, and he was asked concerning the legal standing of the old board and the method by which the change in plan of appointment would go into effect.

Mr. Simpson's reply is as follows:

"* * * That until the governor sees fit to appoint under the terms of the Act of 1907, the present board continues to hold, but that immediately upon appointment being made under the terms of the last-mentioned act, the former (present) board goes out of existence and the terms of office cease. This is based upon the provision of the Act of 1907, to the effect that all inconsistent legislation therewith is hereby repealed."

Office Methods—We have modified and, I hope, improved our office methods in certain important respects during this period. As has been our previous custom, we have paid all bills by check, each check showing the item for which it is drawn, but we have adopted a new method of keeping cash account and check stub records in a form of cash book, so that one entry makes at once the check stub entry and the cash book entry. This bank cash record is balanced each month.

All our previous receipts and disbursements have been re-entered by this new method. We thus put the financial affairs of this board in a much more simple form, where they may be more readily inspected and more easily understood by one not

intimately familiar with the board work. This book is submitted herewith.

"Pending correspondence," previously reported, has been subdivided into "Miscellaneous" and "Follow up." In the latter is placed all correspondence concerning complaints and possible prosecution suits; correspondence which must not be lost sight of in a general file. This is what a business man would call his "Follow up correspondence."

* * * * *

Reciprocity—A proposition for interstate reciprocity between Iowa and Minnesota was considered at the last meeting, the proposition coming from Dr. Talbot, secretary of the Iowa board. Dr. Talbot was invited to send to each member of our board a copy of the Iowa law and a sample set of their written questions, with the understanding that the Minnesota board would then be ready to consider the matter at its January, 1908, meeting.

I understand that this has been done by Secretary Talbot.

I would respectfully recommend that if a careful study of the Iowa law and the Iowa examination has been satisfactory to the board, a specific proposition be made to the Iowa board, defining the basis upon which we are willing to reciprocate.

I would suggest the following points for consideration:

That uniformity in examination for each board and similarity in examination between the two are essential; and that each board prepare several sets of questions on the subjects herein mentioned, the questions to be carefully worded and selected with a view to test fitness for intelligent practice and creditable representation for the profession rather than that they be minutely technical. The subjects for examination should be: Anatomy, five questions; surgery and lameness, ten questions; theory and practice, ten questions; obstetrics, five questions; materia medica and therapeutics, five questions; and laboratory subjects, ten questions. The latter should include physiology, general pathology, bacteriology and histology. We should go into these laboratory subjects only so far as an up-to-date practitioner or recent graduate may be reasonably expected to know them. Either board may cover additional ground as may be thought best.

Other boards subsequently coming into this reciprocity arrangement, should be admitted on similar terms, furnishing its

share of satisfactory questions, and each board being at liberty to use either its own questions or those from any other board which have been accepted.

Certificates issued must indicate the set of questions passed by the candidate. The examination fee should be collected by the board accepting certificate from another state, just as though examination had been given. Boards in the agreement should unite upon certain requisite details, *e. g.*, written examinations, except in very unusual cases, and a minimum requirement of say 65 per cent. to pass; that reciprocity should be maintained only for three-year schools recognized by the American Association, and that reciprocity can apply only to graduates.

* * * * *

I wish to suggest that a bank should be specifically selected by this board and made the official depository for its funds, so that in case of possible financial difficulty the secretary may not be blamed or unfairly held responsible for financial loss. Our funds have accumulated to such an extent that we should place the board money where it will draw at least a time deposit or savings bank interest. Perhaps we should invest a portion of it in a good, safe interest-bearing stock, where it could be made to net 5 or 6 per cent. and readily sold when the money is needed.

I would therefore recommend that a specific bank depository be designated by the board at this meeting and that the sum of about \$100 (subject to the discretion of the secretary) be deposited subject to check, the balance to be placed where it will bring some income.

* * * * *

RECOMMENDATIONS.

Examination Papers—I would respectfully recommend that it shall at once become the custom of this board to preserve and file all examination papers, each paper to show the name of the candidate, his rating and by whom the grading was done.

* * * * *

Policy in Prosecution Suits—The time seems to have arrived when it has become advisable for this board to clearly define its policy with reference to prosecution suits. I will recommend for your alteration or adoption that it shall be the established

custom of this board to confer with the attorney general when necessary and correspond with or interview county attorneys, with a view to assisting the local complainant to bring about successful prosecution whenever the preliminary evidence submitted and circumstances in general seem to justify prosecution. That all books and records or other information in the secretary's office shall be freely placed at the disposal of the county attorney or court, and all reasonable assistance offered, even to the attendance of the secretary as witness if necessary. The secretary shall not be expected to take the field in person upon the receipt of a complaint concerning an illegal practitioner and collect the needed preliminary evidence. In other words, that we shall depend upon the local complainant for the collection of evidence and assistance in the preliminary steps in prosecution.

FINANCIAL REPORT.

The accompanying financial report is submitted for your approval. Our finances are now in good condition. We may consider ourselves on good financial footing. We have ready money available for prosecution suits and other necessary legitimate expenses of the board work.

ANNUAL REPORT.

A summary of the year's work may not be out of place.

The year ending January 6, 1908, has been a very fruitful one for Minnesota veterinarians, and we have many things for which we should be grateful. Perhaps the most important item for the profession in general, aside from general prosperity, was the new law, chapter 419, Laws of 1907, passed by the last legislature. The peculiar provisions of this law have been reported before. See our report for the semi-annual period ending July 9, 1907, and presented to the board and to the State Association at the July meeting.

A few points should be mentioned again that they may be generally and clearly understood, *first*, that the examining board is now authorized to discriminate between colleges by reason of the wording "reputable" inserted in the new law. We are not bound to recognize all three-year schools; *second*, that certificates are now subject to annual renewal on or before the 1st of May. The board is given authority to revoke license or refuse renewal for gross professional misconduct. Prosecution may be either by civil or criminal and penalties either by fine or imprisonment.

I would like to report in this connection some additional motions and rules that have been adopted by the board in the past.

* * * * *

Our office methods have been simplified and improved, particularly in the way of routine methods of filing, recording and listing, so that information may be very promptly found. There is a great deal of correspondence, official records, information concerning illegal practitioners, etc., which should always be readily accessible and this it has been our endeavor to accomplish.

The Stallion Board Law has proved an unexpected source of assistance to the Examining Board in many ways; for instance, the Stallion Board refuses to accept work from any veterinarian who is not in good standing with the Examining Board, *i. e.*, for instance, if the renewal fee is unpaid. We are thus able to locate illegal practitioners who try to do stallion examination work and send in reports.

* * * * *

Forty-nine non-graduates have failed to renew. The graduates now practicing in the state have probably all renewed with possibly one or two exceptions.

We have now before the board two petitions from non-graduates for renewal cards and restoration in the list of legal practitioners.

In closing this report for the last half of the year and for the year closing January 6, 1908, I wish again to thank the members of the Examining Board and of the State Veterinary Association for cordial support, and bespeak for this board, during the year before us, a close, active, personal, supervising interest on the part of board members and of the State Association as a body.

*Summary of Financial Statement.**

On hand January 8, 1907.....	\$116 44
Received from January 8, 1907, to July 6,	
1907	616 55
Received from July 8, 1907, to January 6,	
1908	133 72

Total receipts to January 6, 1908.. \$866 71

*Itemized statement subsequently audited and found correct by the Finance Committee of the State Association. M. H. R.

Disbursements from January 8, 1907, to July 8, 1907	\$137 55
Disbursements from July 8, 1907, to January 6, 1908	293 13
	<hr/>
Total from January 8, 1907 to January 6, 1908.....	\$430 68
	<hr/>
Balance on hand January 6, 1908.....	\$436 03

M. H. REYNOLDS, *Secretary*.

Dr. REYNOLDS—It seems to me that one afternoon and one evening is too little time for our business and program. We should have all day and an evening of the first day, or else we should have the second day for program and clinic, or we should have another day for our day of meeting. Perhaps we could devote half of the second day to clinic and part to program. Perhaps we could have a morning session, but one-half day and one evening is not enough for business and program when men are coming 150 to 300 miles to attend.

Dr. COOK—Certainly, our time is too short. I approve of Dr. Reynolds' remarks.

Dr. LYFORD—I move that we make the first day session begin at 9.30 in the morning.

Dr. LaPointe seconded the motion. Carried.

Dr. REYNOLDS—There is one other thing I want to have you think of for the next six months. In Nebraska and some other states the state veterinary association meets in connection with other organizations at the same time or in session after their state live stock breeders' associations. In Nebraska the State Veterinary Association program is printed with the Live Stock Breeders' program. The veterinarians then have the advantage of being there and mingling with stockmen from all over their state and being closely identified with them in their work. I have wondered if we could not hold one of our meetings in connection with the Agricultural Society and Breeders' Association.

Dr. GOULD—I think that would be a good idea. If we could mix in that way it would be a very desirable thing. I would like to see that for our next meeting, and would suggest that the secretary or the chairman of arrangements at our next place

of meeting make arrangements for something in the order of a banquet where we could sit around and face one another and have a good visit while eating our supper.

Dr. Cook—Another thing is that we omit the clinic and devote our time to recreation.

The meeting then adjourned.

C. A. MACK, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting of the above organization was held in the lecture room of the New York-American Veterinary College, No. 141 West Fifty-fourth street, New York City, on the evening of May 6th, with the president, Dr. Grenside, in the chair. There were thirty members and visitors in attendance.

Dr. R. S. MacKellar, of New York City, presented a most interesting case report on Glanders, with post-mortem and pathological findings. The doctor explained that this case was one which was one which was removed from a large stable where a few cases of glanders had occurred during the past winter. In order to determine, if possible, the extent of the disease among the other horses, all of them were subjected to the "Agglutination Test," under the direction of Dr. A. Silkman, of the Department of Health. As a result of this test, 85 per cent. of the horses agglutinated 1 to 500, or over. Some of these animals had a persistent elevation of temperature without exhibiting any physical symptoms of glanders. In order to determine the value of "Glander Vaccine," all the suspicious horses were given three injections of it at intervals of one week; the vaccine in this case being a 48-hour culture of *Bacillus mallei* which had been heated to 60° C. for two hours, after which 1½ per cent. carbolic acid was added. The first two injections consisted of 2½ c. c. of the vaccine, the second being given one week after the first, and the third, consisting of 5 c. c., was given one week later. Among the horses having a persistent elevation of temperature, improvement was noted from the first, the temperature, with few exceptions, gradually returning to the normal. Four horses broke down, exhibiting clinical signs of glanders after the use of the vaccine. One of these animals, which had a persistent elevation

of temperature, seemed at first to be benefited by the vaccine, but within a short time exhibited a large submaxillary swelling which soon extended out over the angle of the jaw in a nodulated form. A nasal discharge was noted at this time. This animal was destroyed on March 13th and autopsied by Drs. Silkman and Miller. The lungs showed nodules varying in size from a pea to a walnut, some of these nodules containing pus while others were hard and gritty on incision. The mediastinal lymph glands were also affected.

Sections of the lung tissue were sent for pathological examination to Dr. Blair, who reported as to the findings as follows:

"While no bacteriological examinations of the tissues have been made, still the lesions appear to be typical glanderous nodules. There are two distinct types of lesions present in all the sections examined.

"Most of the nodules are new formed and consist of an aggregation of round cells, with a few polynuclear cells. The centers of the nodules are markedly degenerated, showing advanced caseous changes. The older nodules show active proliferation of connective tissue, but the peripheral fibrosis and infiltration so frequently seen in chronic glanders is not marked in the sections which I have examined. In this respect the lesions are unusual, since it is usually noted that old, inactive glanderous nodules ordinarily show considerable fibrous tissue encapsulation. A degree of calcification is also to be noted in many of the nodules which otherwise do not show marked connective tissue reaction. Surrounding the more recent nodules, interstitial and peripheral hæmorrhages are present, and the pulmonary tissue generally shows a patchy or broncho-pneumonia."

In the discussion which followed this report, Dr. MacKellar mentioned a large stable of 140 horses, where 13 had been destroyed on clinical diagnosis of glanders, and a few on mallein test. All of the horses in the stable were then subjected to the agglutination test, and with the result that 87 of the 140 showed agglutination of 1 to 500, or over, some as high as 1 to 10,000. Vaccines were used in this stable. One horse exhibited clinical glanders after the first injection, and one other case about three months later. No cases have developed since then, a period of over nine months.

Dr. R. W. A. English, of Jersey City, N. J., presented a most interesting paper on a recent outbreak of Cerebro-spinal Meningitis which occurred in a large stable in his vicinity. He

gave a complete history of the outbreak and the symptoms as they were presented. He also told of the interest that was taken in these cases by several prominent physicians of Jersey City, and of their advice and assistance in the pathology of the disease.

Dr. English exhibited some musty oats which he had first believed were responsible for the outbreak. The physicians, however, believed that they were dealing with a condition analogous to Cerebro-spinal Meningitis in the human. Bacteriological cultures were made from the choroid plexus, with the result that a pure culture of a Gram negative diplococcus was obtained. Smears from the cerebrospinal fluid also showed the same diplococcus in the pus cells.

Further researches are now being made, and when these have been completed, a more detailed account of the outbreak will be published.

Dr. J. E. Ryder presented an interesting case report on Osteoporosis in a horse. He had had the case under observation for a period of eighteen months, and when the animal died, he secured the head which he exhibited to the members, who examined it with much interest.

Dr. Hazel reported the arrest of several illegal practitioners, each of whom was held under \$300 bail for examination. The question of retaining an attorney to represent this association in the prosecution of these cases was discussed, and was finally disposed of by leaving the matter in the hands of the prosecuting committee with power to act.

Several applications for membership were received, which will be acted on at our next meeting.

Meeting adjourned.

W. REID BLAIR, *Secretary*.

TEXAS VETERINARY MEDICAL ASSOCIATION.

The fifth annual meeting of the above association was held in Dallas on March 13, 1908.

The following program was carried out:

10.30 A. M.—Meeting of Executive Committee, No. 232 Main street (Dr. A. E. Flowers' office).

1.30 P. M.—Clinic, No. 186 Thomas avenue (Dr. L. E. Warner's Veterinary Infirmary).

7.00 P. M.—Banquet, St. George Hotel.

8.00 P. M.—Business meeting, No. 232 Main street (Dr. A. E. Flowers' office).

Discussions—

M. A. Francis, D. V. M., College Station, Texas.

W. G. Langley, D. V. M., Dallas, Texas.

F. G. Cook, D. V. M., Paris, Texas.

T. W. Watson, V. S., D. V. S., Corsicana, Texas.

Clinic.

The clinic at Dr. L. E. Warner's Hospital proved to be a very interesting feature of the meeting.

First case—Ovarectomy on bitch. Anæsthesized by Dr. G. W. Langley, who used an intraperitoneal injection of Stovaine. Operated by Dr. Marsteller.

Second case—Bay gelding, nine years old; lame in left foreleg.

Surgeons—Drs. Cook and Wallace.

Diagnosis—Chronic carpalis.

Prognosis—Unfavorable.

Treatment—Nothing done.

Third case—Bay gelding, twelve years old; lame in right foreleg.

Surgeon—Dr. Cook.

Diagnosis—Chronic tendonitis with contraction of perforans and perforatus tendons.

Prognosis—Unfavorable.

Treatment—Tenotomy.

Fourth case—Brown gelding, six years old; lame in right foreleg.

Surgeon—Dr. Lewis.

Diagnosis—Acute tendonitis.

Prognosis—Favorable.

Treatment—Rest and bandaging with cold dirby bandages.

Fifth case—Dun mare, with split ear.

Surgeons—Drs. Forbes and Watson.

Treatment—Scarification and cutaneous sutures.

Sixth case—Brown mule.

Surgeon—Dr. Cook.

Demonstration of operation for thoracic choke.

Seventh case—Bay colt, castrated standing. By Dr. L. E. Warner.

Eighth case—Sorrel colt, castrated standing. By Dr. L. E. Warner.

Dr. R. G. Flowers, Ft. Worth, Texas, and Dr. Fred G. Mathews, San Antonio, Texas, were elected to membership.

The following officers were elected for the ensuing year:

President—W. G. Langley, Dallas, Texas.

First vice-president—F. G. Cook, Paris, Texas.

Second vice-president—L. E. Warner, Dallas, Texas.

Secretary—Ross Marsteller, College Station, Texas.

Treasurer—S. L. Blount, Ft. Worth, Texas.

The association adjourned, to meet at the call of the Executive Committee.

ROSS MARSTELLER, *Secretary*.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting of the above association was held on the evening of April 22, 1908, at No. 514 Ninth street, N. W., Washington, D. C.

Those present were: Drs. H. W. Acheson, F. M. Ashbaugh, Harry Bosley, D. E. Buckingham, W. P. Collins, L. S. Cleaves, C. E. Dornheim, A. M. Farrington, J. P. Keifer, C. B. Robinson, M. P. Smith, R. C. Talty, J. P. Turner, C. C. Weeks, W. E. Yetton, H. Young.

Visitors: Drs. C. F. Dawson (state veterinarian of Delaware), G. H. Miner (Bureau of Animal Industry), H. S. Gamble.

The committee on contagious diseases reported a large number of cases of rabies in the District and surrounding country; and after a thorough discussion of the subject, a committee, consisting of Drs. C. B. Robinson, C. C. Weeks and W. P. Collins, was appointed to wait upon the commissioners of the District of Columbia and present to them resolutions recommending the muzzling of all dogs.

Drs. H. S. Gamble and C. F. Dawson were elected members of the association.

Dr. M. P. Smith presented a very able and instructive paper on azoturia, which evoked very favorable comment, and was discussed at length.

During the evening the association was visited by Drs. Joseph Hughes, president, Chicago Veterinary College, Chicago, Ill.;

Richard P. Lyman, secretary, American Veterinary Medical Association, Hartford, Conn.; Tait Butler, secretary, Association of Veterinary Faculties and Examining Boards of North America, Raleigh, N. C.; Dr. Paul Fischer, state veterinarian, Columbus, Ohio.; and A. M. Farrington, assistant chief, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C. These gentlemen were designated by the Secretary of Agriculture as a Committee on Veterinary Education, to visit the various veterinary colleges throughout the United States and report concerning the instruction in veterinary science given at these institutions.

Each of these gentlemen addressed the association briefly.

F. M. ASHBAUGH, *Secretary*.

THE MISSOURI VALLEY VETERINARY ASSOCIATION.

The fourteenth annual meeting of the Missouri Valley Veterinary Association will be held in Omaha, Neb., June 23 and 24, 1908.

The meeting was called by the officers of the association on these dates, which are Tuesday and Wednesday, because many of the short railroad lines do not run trains on Sunday. It is thought that these days will be more satisfactory to many and induce a larger attendance.

An excellent program will be found to have been arranged, and it is hoped that every veterinarian in the middle West will take two days off and attend this meeting.

B. F. KAUPP, *Secretary*.

EPSILON CHAPTER OF ALPHA PSI FRATERNITY— UNIVERSITY OF PENNSYLVANIA.

The students of the veterinary department, University of Pennsylvania, have made one important stride toward the establishment of a stronger bond of feeling among the fellow-students and the infusion of a stronger and deeper interest in the noble profession they have chosen, by organizing the Epsilon chapter of the Alpha Psi Fraternity. The installation took place Saturday evening, May 9, at Moseback's Banquet Hall, Thirteenth

and Grand avenue, Philadelphia, Pa. The ceremonies were conducted by Dr. John Drew, of the National Council, and Mr. H. P. Gill, of the Beta chapter. After the initiations the members assembled in the blue room, where a menu arranged by the charter members was served. Drs. John W. Adams, W. Horace Hoskins, Clarence J. Marshall and William Herbert Lowe, Associate Editor of the AMERICAN VETERINARY REVIEW, were elected honorary members.

WM. J. LEE, *Secretary*.

MASSACHUSETTS VETERINARY ASSOCIATION.

The annual meeting and banquet of this association was held at Young's Hotel, Boston, Wednesday evening, April 22, 1908. The following members were re-elected to office for the ensuing year: President, Frank J. Babbitt; first vice-president, Wesley L. La Baw; second vice-president, Charles A. Boutelle; secretary-treasurer, Wm. T. White.

Two new members were admitted into the association, and resolutions were passed on the deaths of Dr. Roscoe R. Bell, of New York, and Dr. Geo. H. Lee, of Brighton, Mass.

About thirty members sat down to the dinner at 7 p. m. The guests of the evening were Dr. J. F. Ryder, chief of the Boston districts for the United States Bureau of Animal Industry, and Mr. Frank D. Kemp, member of the Massachusetts legislature, from Springfield.

Following the dinner a general discussion on the eradication of bovine tuberculosis, with the allied subjects of sanitary measures for dairy buildings, took place, and held the attention of all present until a late hour.

WM. T. WHITE, *Secretary*.

A ZEBRA STUD.—The British Government is maintaining a zebra stud at Nairobi in Central Africa with the view, it is said, of later breeding zebroids for transport and work purposes instead of mules—that is, of using the zebra instead of the ass to cross with mares. The original stock was captured wild in its native habitat and it is stated that in a forthcoming report figures will be presented showing that the zebroids have proved more profitable than mules and if anything more tractable.

NEWS AND ITEMS.

CHICAGO'S population consumes daily 240,000 gallons of milk.

ONE pound of learning requires ten pounds of common sense to apply it.—(*Persian Proverb.*)

SECRETARY LYMAN submitted to an operation for removal of the appendix on May 21st.

Dr. ALEXANDER PLUMMER, of the Military College at Fort Riley, Kan., was a Kansas City visitor the third week in May.

THE American Association of Medical Milk Commissions holds its second annual meeting at Chicago, Ill., June 1, 1908.

THE Illinois State Veterinary Medical Association will hold its 26th semi-annual meeting in Galesburg, at the Union Hotel, July 15th.

THE establishment of laboratory courses in physiology and pharmacology at the McKillip Veterinary College, Chicago, are announced.

THE annual banquet of the veterinary alumni of the U. of P. will be held at "The Orchard," in Philadelphia, on the evening of June 17th.

WILLIE—"I got a licking to-day from both pop and mom."

His Uncle (who runs a livery stable)—"They certainly are a spanking pair."

Dr. R. W. JONES, an Inspector in the B. A. I. service at Canadian, Texas, is spending a short vacation visiting his parents at Kewanee, Illinois.

THERE were in the United States at January 1 last 21,194,000 milch cows and 50,073,000 other cattle—a total of 71,267,000, valued at \$1,495,995,000.

Dr. FRIEDRICH LOEFFLER, professor at Griefswald, has been called to the chair of hygiene in the Berlin Veterinary School in the place of the late Professor Ostertag.

THE Library of Science, Calcutta, records its gratitude and sincere thanks with the AMERICAN VETERINARY REVIEW for the regular contribution of our periodical to their library.

THE Borough of Brooklyn, N. Y., is suffering from an invasion of eels which have found their way into the water mains by the thousands. The slimy wrigglers have clogged many pipes.

VOICES FOR STUFFED BEASTS.—The Teddy bear craze has led to the starting in New York of a new industry to supply whistles, or, as they are called in the trade, "voices," for stuffed toy animals.

THE jaw of the snake is supplied with what might be termed a double hinge, which permits the reptile when occasion demands to greatly increase its capacity and permits of its swallowing astonishingly large bodies.

THE St. Louis Society of Veterinary Inspectors is the name of a new organization composed of the veterinarians of the Bureau of Animal Industry stationed at St. Louis and at the National Stock Yards, Illinois.

VETERINARY INSPECTOR BEN HOWES reports that J. C. Weller, of Painted Post, N. Y., has a cow which gave birth to a live calf and eight days later gave birth to another live calf. Cow and calves are doing well.

Dr. O. L. PRIEN, formerly a veterinary inspector in the Bureau of Animal Industry at St. Paul, has been elected by the Board of Trustees of the University of Wyoming, Professor of Veterinary Science in that institution.

VETERINARIAN DIES OF LOCKJAW.—The *Kansas City Star* reports the death of Dr. Emery M. Herrick, Veterinarian, Sedalia, Mo., of tetanus, after a four day's illness. He is survived by a widow, a son and a daughter.

Dr. CHARLES EASTMAN has been transferred from Dr. Geo. S. Baker's meat inspection force at San Francisco, Cal., to Cambria, in the same state, and has been assigned to field work in eradicating cattle ticks under Dr. Wm. M. MacKellar.

VETERINARY education is being disseminated by B. A. I. Inspectors as they go from ranch to ranch. The ranchers are putting aside the "old horse doctor" ideas and are consulting the modern veterinarian for "up-to-date" scientific facts.

Dr. C. J. MARSHALL officiated as one of the veterinary inspectors at the Philadelphia Horse Show, May 25-30. He is also secretary of the Pennsylvania Work-Horse Association, whose second annual parade takes place in his city June 3.

ON May 21st, Dr. M. Cunningham, a young veterinarian in Kansas City, was thrown from a wagon by an unmanageable team and suffered concussion of the brain, and at this writing lies in a very critical condition in the University Hospital.

Dr. ELLIS of the REVIEW reports rather an unusual operation. Extraction of cataracts on both eyes of a rhinoceros, performed at the New York "Zoo," May 27, by Dr. Van Mater, professor of Ophthalmology at the New York-American Veterinary College.

ADDITIONS TO GOVERNMENT STUD.—The horse-purchasing board of the U. S. Department of Agriculture recently visited the bluegrass region of Kentucky and purchased a number of mares which will be added to the government stud at Fort Collins, Col.

Dr. MELVIN'S WORK APPRECIATED.—Dr. Melvin's work as Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, came in for a well-deserved endorsement at the recent annual convention of the Cattle Raisers' Association of Texas, held at San Antonio, in that state.

PUBLIC sentiment in western Missouri and eastern Kansas is growing very rapidly in favor of the purification of milk supply of municipalities, and a number of small cities have established dairy and milk inspection. Among the recent ones added to the list are Joplin, Mo., Carthage, Mo., and Coffeyville, Kan.

STANDS FOR MARY.—Boy—Cow is a noun, feminine gender, third person singular, and stands for Mary.

"Stands for Mary?" asked the master in astonishment.

"Yes, sir," responded the urchin, with a grin, "for if the cow didn't stand for Mary how could Mary milk the cow?"—(*London Express*.)

BUTTERMILK.—"Which is the cow that gives the buttermilk?" innocently asked the young lady from the city, who was inspecting the herd with a critical eye.

"Don't make yourself ridiculous," said the young lady who had been in the country before and knew a thing or two. "Goats give buttermilk."—(*Springfield Journal*.)

HIS Majesty, King Edward VII., has conferred upon the Government Veterinary Bacteriologist of the Transvaal, Dr. Arnold Theiler, the most distinguished Order of Companion of St. Michael and St. George (C. M. G.). This Order, which was founded in the year 1818, has as its motto: "*Auspicium melioris aevi*" (Augury of a better age).

Dr. CARL W. FISHER, San Mateo, Cal., accompanied by Mrs. Fisher, is coming East for a rest. They will visit the Doctor's former home, Cabot, Vermont, and from there go to the American Veterinary Convention in Philadelphia, and thence to the International Congress in Washington, devoting the months of June, July, August and September to recreation.

CARBONATED MILK.—Carbonated milk is the latest product which the dairy scientist has produced. From preliminary reports it would appear that a new method of treating milk has been discovered that will increase the time it may be held without going off flavor or becoming sour, from a day or two, which is now the limit, to anywhere, from three weeks to three or four months.

DEER GOING TO MINNESOTA.—For some unexplained reason many herds of deer and caribou are said to be crossing the line from Manitoba and invading the lake and forest regions of northern Minnesota. Travelers from the Rousseau River country report both herds of deer and caribou moving southward. They appear to be heading for the Red Lake and the Red River lake and forest country.

PENSION FOR PROF. LAW.—The Carnegie Foundation for the Advancement of Teaching has awarded a pension to Professor James Law, F.R.C.V.S., who retires this month, at the end of the present academic year, from the Directorship of the New York State Veterinary College at Ithaca after a long and notable career, and with the proud distinction of being one of the very few members of the original faculty of Cornell University who have been active in the service all these long years.

RESULT OF COMPETITIVE EXAMINATIONS.—As a result of competitive examinations held in Havana, Cuba, the following candidates have been elected professors in the recently established School of Veterinary Medicine of the University of Havana. Dr. Francisco Etchegoygen, General Pathology and

Medicine; Dr. Julio Brower, Surgery, lameness and shoeing; Dr. Ricardo Gomez, Physiology, animal mechanics and obstetrics; Dr. Francisco del Rio., Anatomy; Dr. Honoré F. Lainé, Conformation of domestic animals; meat inspection; legal medicine.

Drs. JOHN L. GROSS, of Amethyst, Colo.; T. Barnett Huff, South St. Joseph, Mo.; W. F. Osborne, Baldwin, Kan., and T. H. Wilson, Kansas City, Mo., have received appointments as veterinary inspectors at Chicago, Ill. Drs. Clifton Carter and E. F. Faulder, of Kansas City, and Robt. Newman, of Rea, Mo., have been appointed by the B. A. I. and assigned to duty in the scab eradication service with headquarters at Kansas City. These gentlemen are all recent graduates of the Kansas City Veterinary College who took the special Civil Service examination in February.

MAINE VETERINARIANS.—The records show that there are 118 persons in the state of Maine who have a legal right to practice veterinary surgery, medicine and dentistry in that commonwealth. Forty-six of this number are collegiately educated veterinarians and 72 are non-graduates. Three forms of certificates are issued by the State Board of Veterinary Examiners as follows: Form A, Graduates; form B, Non-graduates; form C, Non-graduates who are limited to dentistry.

The board has issued an alphabetical list of all legalized practitioners giving name, residence, college and form of certificate issued to each. Non-graduates are designated "N. G.," a very appropriate designation for some but not for all non-graduates. The board is constituted in its organization as follows: Dr. W. S. Lord (Harvard University), of Portland, President; Dr. F. E. Freeman (O.V.C.), of Rockland, and Dr. A. Joly (Laval University), of Waterville, Secretary and Treasurer.

EXAMINATION FOR FARRIER.—The United States Civil Service Commission announces an examination on June 17, 1908, to secure eligibles from which to make certification to fill a vacancy in the position of farrier, \$720 per annum, Quartermaster's Department at Large, Washington, D. C., and vacancies requiring similar qualifications as they may occur. Applicants should show in their applications that they have had experience

in nursing and handling sick animals. No educational test will be given, and it will not be necessary for applicants to appear at any place for examination. The examination will consist of the subjects mentioned below, weighted as indicated:

<i>Subjects.</i>	<i>Weights.</i>
1. Age	20
2. Physical condition	20
3. Experience	60
<hr/>	
Total.....	100

NEW JERSEY LEGISLATION.—Among the new laws passed by the New Jersey Legislature of more or less interest to veterinarians are the following:

Chapter 56, which authorizes the establishment of a Live Stock Commission of the State of New Jersey for the purpose of promoting interest in the breeding of pure breed domestic animals and the improvement of grade animals of the various breeds. This commission is given power to purchase and maintain stallions of the draft and coach types. Twenty thousand dollars is appropriated to the use of the commission for the current year and thereafter an annual appropriation of five thousand dollars.

Chapter 212 regulates the public service of stallions and jacks in New Jersey. Provision is made for the registration, examination and licensing of all stallions and jacks.

Chapter 97 appropriates the sum of twenty-five thousand dollars to the State Commission on Tuberculosis in Animals for defraying expenses and for the payment of slaughtered animals.

The game laws of the state are amended in several important particulars and additional legislation is enacted for the prevention of cruelty to animals.

Health and pure food laws are amended. The State Board of Health, as heretofore constituted, is wiped out of existence (Chapter 298) and an act passed (Chapter 299) creating a new State Board of Health. The Governor has appointed new men on this board and it is confidently expected that the long demanded re-organization of the board will now be speedily effected so that the work of this important branch of the state government may be administered in the most comprehensive and efficient manner.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary
American V. M. Ass'n.....	Sept. 8, 9, 10 & 11.	Philadelphia..	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	July 9, 10, 1908...	Newark	W. Herbert Lowe, Paterson.
Connecticut V. M. Ass'n.....	Aug. 4, 1908.....	New Haven ..	B. K. Dow, Williamantic.
New York S. V. M. Soc'y.....	Sept., 1908.....	Utica.....	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.....	June 17.....	Reading.....	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Call of Chair...	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n.....	July.....	Portland.....	A. Joly, Waterville.
Central Canada V. Ass'n.....	.....	Ottawa.....	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	Feb. 2-3, 1909.	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1909.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	July 15, 1908.....	Galesburg.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Decatur.....	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	July 2-3, 1908...	Raleigh.....	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	January, 1909.....	Columbus.....	Sidney D. Myers, Wilmington
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh.....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	August, 1908.....	St. Joseph.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	.....	Rochester.....	J. H. Taylor, Henrietta, N. Y.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison.
Minnesota State V. M. Ass'n.....	July 8-9, 1908...	Duluth.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	.....	Philadelphia..	F. H. Schneider, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman
Colorado State V. M. Ass'n.....	June, 1908.....	Denver.....	St., Germantown, Pa.
Missouri Valley V. Ass'n.....	June 23-24, 1908.	Omaha.....	M. J. Woodliffe, Denver.
Rhode Island V. M. Ass'n.....	Jan. and June.....	Providence.....	B. F. Kaupp, Kansas City.
North Dakota V. M. Ass'n.....	.....	.....	T. E. Robinson, Westerly.
California State V. M. Ass'n.....	Mch. Je. Sep. Dec	San Francisco	C. H. Martin, Valley City.
Southern Auxiliary of California	.....	.....	C. M. Haring, U. C., Berkeley
State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles...	J. A. Edmonds, Los Angeles.
South Dakota V. M. A.....	June 30.....	Brookings.....	C. McDowell, Watertown.
Nebraska V. M. Ass'n.....	Oct. 6-7, 1908...	Grand Island..	H. Jensen, Weeping Water.
Kansas State V. M. Ass'n.....	Jan., 1909.....	Topeka.....	B. Rogers, Manhattan.
Ass'n Médécalle Veterinaire Fran-	1st and 3d Thur.	Lec. Room, La-	.....
caise "Laval".....	of each month	val Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	.....	Not decided...	D. A. Piatt, Lexington.
Washington State Col. V. M. A.....	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association...	An'l, Jan., '09...	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo.	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n.....	.....	Auburn, Ala.	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	.....	.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June 17, 1908...	Philadelphia..	B. T. Woodward, Wash'n, D. C.
Virginia State V. M. Ass'n.....	July 17, 1908...	Norfolk.....	W. G. Chrisman, Charlo'sv'le.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club...	Monthly.....	Jersey City...	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	4th Wed. ea. mo.	514-6th St.,	.....
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	N. W.....	F. M. Ashbaugh, Wash., D. C.
Arkansas Veterinary Society.....	.....	Chicago.....	J. Madsen, Chicago, Ill.
York Co. (Pa.) V. M. A.....	.....	York, Pa.....	B. H. Merchant, Little Rock.
Philippine V. M. A.....	.....	.....	E. S. Bausticker, York, Pa.
Montana State V. M. A.....	Oct., 1908.....	Helena.....	R. H. McMullen, Manila.
Veterinary Ass'n of Alberta.....	.....	.....	.....
Chicago Veterinary Society.....	2d Tues. ea. mo.	Chicago.....	C. H. H. Sweetapple, For.
Maryland State Vet. Society.....	Baltimore.....	Saskatchewan, Alta., Can.
			J. M. Parks, Chicago.
			H. H. Counsellman, Sec'y.

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MESSRS. C. F. BOCHRINGER & SOEHNE, MANNHEIM, represented for fifteen years in America by Mr. Emil Levi, have upon his retirement from their firm (with which he has been connected for the past twenty-seven years) given up their New York branch, and placed in the hands of MESSRS. MERCK & CO., NEW YORK AND ST. LOUIS, the sole marketing of their products in the United States from May 1, 1908. So that Messrs. Merck & Co. are now prepared to fill all orders for "B. & S." Quinine and "B. & S." Cocaine and all other "B. & S." chemicals.

THE GARLAND CONTINUOUS FLOW COMBINATION INJECTION AND SUCTION PUMP, manufactured by SHARP & SMITH, CHICAGO, illustrated on page 10 (adv. dept.) of May issue of REVIEW, is exceptional value for the price at which listed, because of the excellent manner in which it is constructed and the ease with which it can be manipulated and cared for. Anyone interested can get full information by writing them.

TYREE'S ANTISEPTIC POWDER. A quantitative, qualitative, bacteriological and clinical analysis of this preparation is embodied in a most interesting little brochure, which will be mailed physicians by the manufacturer, J. S. TYREE, at Washington, D. C., free of cost upon application. We firmly believe that it is not so much what it contains that gives it its marked value, as the way in which the ingredients are combined.

THE upper part of the page opposite, may hold something of interest to REVIEW readers, under the heading, "NOTICE TO VETERINARIANS."

See SCHWARTZ CUTTERS AND EXTRACTORS, adv. on page opposite. It is worth investigating.

AMERICAN VETERINARY REVIEW.

JULY, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, May 15, 1908.

THE PROCEEDINGS OF THE FORTY-FOURTH ANNUAL MEETING OF THE A. V. M. A. came to me a short while ago, and in glancing at them I am reminded that I am the only surviving organizer of that to-day so grand and so powerful body of scientists.

How far from the days where in the Astor House a few met and organized the U. S. V. M. A.—how far from the first meetings, where the life of the scarcely born association was already endangered by the doings of Jennings and McClure—how far from those semi-yearly gatherings, now in New York and then in Boston, when a few hours covered all the work done and a few pages enregistered it—and to-day the proceedings make a handsome volume of over 500 pages, the work has demanded several days to be accomplished and the number of members is nearly 750! A small army, yearly increasing and yearly making its influence and power felt more and more. When the fiftieth anniversary will come in six years, there will not be a veterinarian in the United States that will not belong to the national organization. I wonder if there will be any of the original organizers left to celebrate!—Why not?

But what of the proceedings?

* * *

Well, every one will and must read them!

The masterly, but perhaps a little too long address of Prof. Law, the most thorough report of the Committee on Intelligence

and Education, by Drs. Pearson and D. A. Hughes, the report of the Committee on Diseases, by Drs. V. A. Moore, A. D. Melvin, L. A. Merillat, and others; all of them will certainly be looked into again, as their contents demand the careful consideration of a quiet reading.

The papers were plenty! Some, I may say quite a number of them that were read were honored with more or less discussion, such as that of Dr. W. J. Taylor on the agglutinating and precipitating power of glandered and non-glandered blood serum in diagnosis; of A. Liautard, with John Smith and his misfortunes; of Dr. A. D. Melvin on the future work in eradicating tuberculosis; of Drs. Mohler and Washburn on tuberculosis of hogs with special reference to its suppression; of Dr. M. H. Reynolds on milk as affected by stable practices and subsequent handling; of Drs. C. Cary and W. Giltner on the municipal milk inspection in the south; of Drs. S. Gilliland and E. L. Cornman on the effect of the tuberculin test upon lactation; of Dr. G. Johnson on stable ventilation from a clinical standpoint; of Prof. W. L. Williams on the surgical relief of roaring, and of Dr. D. A. Hughes on the place of veterinary medicine in state education.

These papers will no doubt be read over again. They are too valuable to be appreciated with a reading made in a hall. But there were also a number of others, which were not read, or if they were, did not bring discussion. They will prove a new, valuable and instructive treat. For instance, the long and important one, of Dr. A. T. Kinsley on Tumors, which is so well illustrated; the reminiscences of bovine tuberculosis in Massachusetts, by Dr. J. Winchester; the infectious lip and leg ulceration of sheep, by Dr. M. Knowles; the veterinary schools of Europe, by Dr. P. A. Fish, and several others.

The report of the Association of Faculties will certainly in its brief appearance, and at this moment where the subject of reforms in schools is occupying so much attention, be the object of consideration and approval. But it is not possible for me to review in more detail the contents of this volume, which is such

a valuable addition to the history of veterinary medicine in America. There are so many important points to consider that all I can add is to repeat: "Well, every one will and must read them."

* * *

I may, however, be allowed to say a few words more for personal motives, viz.: To answer and to address the critics of my paper, "John Smith and his Misfortunes," my thanks for their remarks and for their conclusions which I am sure agree with some of the arguments held by J. S. in his demands. Indeed, Dr. Fish says: "But uniformity is under the present condition in this country an ideal condition. The condition, however, is not hopeless. The A. V. M. Association can exert a great deal of influence. It can influence them (the schools) to some extent by refusing membership." Almost the very words of J. S.

Dr. Noack: "Certainly I am willing to admit, if the standards were all alike, then it would be injurious to demand examination of this man. I think the time is not very far off when we will have uniformity of preliminary education, uniformity of examination." But Dr. Noack asks twenty-five years for that! I am more hasty—I may also add that I have made no allusion to the examination of a foreign graduate, therefore I do not see why my able critic refers to it and brings on the examination of a French graduate going to practice in Germany. Of course he will, but as you say "he will have very little trouble to gain the permission"—it is not so in the case of J. S.

Dr. Hoskins said: "The State Examining Boards have been forced upon the profession—because of the wide variation between the curricula of the various schools—the Association of Faculties has arrived at a minimum proposition for each school to live up to." Is not that the first step towards the realization of the uniformity asked by J. S?

Dr. Melvin complies with the requirements of Civil Service Commission.

Dr. D. A. Hughes says that I contradict myself and takes as proof my writings in one of the issues of the REVIEW, where I said that although he has a diploma from one of the French schools, a candidate to enter the army or the sanitary service or be admitted as teacher in one of the schools, has to pass a special examination. Of course he has, and J. S. also asks to. Read page 263 of the proceedings, which says: "He asks that the same (the recognition of his diploma) should be for his admission for Veterinary Inspectorship in the Bureau of Animal Industry and also in the army, *excepting of course the obligations of a special examination on some special subjects which relate to these special positions!*" Where is the contradiction?

I will have patience, and without waiting twenty-five years the uniformity asked by J. S. is bound to come. It is rapidly progressing. Dr. Hoskins has started it.

* * *

PART PLAYED BY HELMINTHES, THEIR LARVÆ AND THOSE OF INSECTS IN THE TRANSMISSION OF PATHOGENOUS MICROBES. —In my chronicle of April last, making allusion to the investigations by Prof. Weinberg on the part played by abdominal parasites in the etiology of infectious diseases, I had an opportunity of relating facts of interest upon the *Echinorhynchus gigas*, which is not uncommonly found in swine. Two other articles from the same observer have been published in the *Annales de l'Institut Pasteur* from which I may be allowed to make a few extracts.

Part played by Helminthes, their larvæ and those of insects in the transmission of pathogenous microbes, is the title of these articles, which are found in the June and July, 1907, issues of this superior publication. They contain a great number of observations relating to this interesting subject, and speak of the researches made by the author in a large number of intestines of animals. Those are the ones that interest us the most.

There is no positive proof that ascarides can fix themselves upon the healthy mucous membrane. In one intestine that con-

tained 725 ascarides, this membrane was entirely free from any lesion. And yet this nematod must have in certain cases an effective action in some intestinal lesions. For Weinberg, intestinal perforations which are attributed to ascarides, occur as follows: Their bites give rise to some severe local congestion, starting point of an inflammation which may end in ulceration, which the ascaris enlarges to make its way through the intestinal walls.

Spiropteras are supposed to cause irritation of the sub-mucous connective tissue of the right sac of the stomach and to give rise to the formation of the tumors that are found in that sac. Out of 2,000 stomachs, about, Weinberg has found these tumors only in four instances. They were covered by a perfectly healthy mucous membrane. The centre of the tumor contained spiropteras, leucocytes and microbes. According to Raillet microstome spiroptera do not give rise to sub-mucous inflammatory tumors and yet they may occasion ulcerations.

Sclerostomas firmly fixed on the mucous membrane of the cæcum and colon, perforate the capillaries and suck the blood. Their bites may cicatrize or again be complicated with a small ulceration. Besides this, small œdematous tumors are sometimes developed. This lesion may contain microbes. As the parasites gather in masses, their agglomeration assists the intestinal infection. Able to inoculate pathogenous microbes, sclerostomas can give rise to fatal septicæmia.

In examining lesions due to tænias in the cæcum, Weinberg has been able to find the explanation of the mechanism of the transmission of microbes by these worms. At the point where they are fixed, small depressions and ulcerations of the mucous membrane are observed. In fixing itself upon the mucus, the worm deposits on the same spot the microbes that cover its suckers, and they with those which are already on the mucous membrane give rise to a severe congestion followed by inflammation and ulceration. These observations made with the tapeworm of horses show that cestods do act an important part in the transmission of pathogenous microbes.

Larvæ of helminthes pass easily through the intestinal mucous membrane, to reach by the lymphatic or blood circulation the various organs of the economy. Can they transport microbes wherever they go? Sub-mucous larval cysts of sclerotomas contain microbes belonging to various species of bacterias. The sub-peritoneal also do, although in smaller number, it is certain that larvæ of nematods in passing through the mucus leave on its surface the microbes that they carry. Some larvæ, however, can introduce microbes directly into the circulation, and even in the sub-mucous and sub-peritoneal layer.

For the larvæ of Oestri, that are found in the stomach, it is well probable that on account of the microbes that they can introduce in the thickness of the walls of the stomach, they do inoculate virulent microbes to which some form of septicæmia in the horse can be attributed.

The general conclusions of the author are that most helminthes do assist in the penetration of microbes through the intestines.

* * *

OPHTHALMO-REACTION AND NON-ACOUTUMANCY TO TUBERCULIN.—Since the day when Prof. Vallee had shown that the reaction of Wolff-Eisner was applicable to the diagnosis of bovine tuberculosis, the real public interest of the method has been manifested by the many publications that have been made on the question and by the many important points relating to it, which have already been obtained. And if it has been established that the method of the oculo-reaction does not possess the so positive value of sub-cutaneous tuberculation, and that there is not impossibility to associate the research of the ocular reaction with the utilization of tuberculin by hypodermic injections, and again that sub-cutaneous tuberculation promotes the activity of oculo-reaction, when it is done after a test of this last, there are other points which are yet to be investigated. Of course Prof. Vallee was among the first to look into them, and he has studied them in his article "*Ophthalmo-reaction and non-acoutumancy to tuberculin*," which he has published in the *Revue Generale*.

Upon eight tuberculous bovines which had not yet been submitted to the test of either ophthalmo-reaction or of tuberculation by the skin, he applied in one eye, in three different operations nineteen days apart, one drop of tuberculin. In all, the reaction was positive and progressive in severity. A last instillation made with one-tenth of a drop, gave a reaction at least equal in severity to the one obtained in the preceding experiments, and much more than that obtained by a first instillation of a similar dose on a fresh subject. Therefore, during these successive instillations, a true sensitivity of the eye operated upon had taken place. At the end the experiment, the eye that did not react, keeps the first sensitiveness of the oculo-reaction.

* * *

OTHER POINTS OF INTEREST.—This sensitiveness of the eye by successive instillations does not take place in subjects which are free from tuberculosis. Very young calves and rabbits have received instillations of a big drop of tuberculin without ever giving the slightest ocular reaction.

And besides, the sensitiveness carried as above, seems powerless to promote the reaction in tuberculous subjects, which do not give from the start the oculo-reaction, when on the contrary, they do react to tuberculin injected under the skin. Vallee has bovines which react actively to tuberculin and have never given positive ophthalmo diagnosis.

A long experience has shown that in tuberculous bovines, subcutaneous injections of tuberculin, made with a diagnostic object, give positive results when carried out in the same way in one animal only when a long month has elapsed between the two successive injections.

Ocular reaction is always obtained in animals which are likely to furnish the oculo-reaction, notwithstanding previous hypodermic injections of tuberculin.

Therefore better than the double dose of tuberculin followed by the early recording of the temperature, preconized by Vallee himself, oculo-reaction may serve to expose the fraudulent inter-

ference of dealers or again serve at the frontiers in the cases of importation of tuberculous animals.

To this point of view especially, it then becomes important to study the value of this new method, viz., oculo-diagnosis to be utilized alone or in connection with the hypodermic injection of tuberculin!

* * *

OZONED TERPENE OR TALLIANINE.—I have come across lately a pamphlet due to a physician on Ozoned Terpene, or as it is better known to veterinarians, on *Tallianine*.

It is quite surprising that, notwithstanding the advantages that therapeutcy can derive from its use, it is almost entirely ignored on the continent, at least in France, where it was discovered and is made. And another fact of no less interest is that, while the use of intravenous injections of physiological serums and of colloidal silver has been first recommended by veterinarians for Tallianine also, it is to them that belong the priority of using it in the treatment of diseases of our domestic animals. American veterinarians have indeed been the first to appreciate the good results that may be obtained with it.

A young physician, Dr. J. Gautier, is the author of the pamphlet that I allude to. He also studied Tallianine in its composition and mode of preparation, he convinced himself of its mode of action and of its innocuity, in a general point of view, of that on the cardio-vascular apparatus, on the urinary and respiratory systems, on tuberculosis and with *Staphylococcus aureus*, *Streptococcus pyogenes* and pyocianic with also experimental infections, trypanosomiasis, dourine, nagana. He then recorded a number of observations as they were made in various hospitals. Four cases of simple and double pneumonia with recovery, of one case of broncho-pneumonia, complication of measles, with relapse because of too early arrest in the treatment and followed with recovery when this is resumed, of infectious endocarditis with recovery, of pulmonary tuberculosis, of two cases of puerperal infection, three of puerperal septicæmia, one

of paratyphic affection all followed with recovery. He also has resorted to Tallianine for some external use with great advantage. He closes his very interesting thesis with the following conclusions, which may permit veterinarians to extend their application of this mode of treatment.

From the study made of Tallianine it is shown that in the treatment of infections, it possesses an effect nocive for the microbe and beneficial for the organism.

Nocive for the microbe, that is to say antiseptic, by the great quantity of ozone that it contains. Beneficial for the organism, because it promotes an intense hyperleucocytosis, while at the same time, it destroys toxic products first by direct oxydation and then removes by its diuretic action and facilitating their expulsion.

Secondarily, it also has a tonic effect on the heart and acts as a powerful antiseptic of the pulmonary apparatus.

The use of this agent is then peculiarly indicated:

1. In all severe acute infections. It will prove principally advantageous in anaerobic infections.
2. In cardiac collapse and asystoly, especially in dropsical individuals.
3. In pulmonary infections with anaerobic germs, pulmonary gangrene, fetid bronchitis.
4. In diseases with difficult and slow nutrition.
5. Finally as a useful adjunct and with specific antitoxic serums in diphtheria and specially tetanus, whose toxins are destroyed then by oxydation.

The external use of this preparation ought to be recommended in the treatment of anaerobic suppurations.

* * *

ACUTE ANTERIOR POLIOMYELITIS? NO RABIES.—I have just gathered in the proceedings of the *Academie of Medicine of Belgium* a very interesting case of comparative pathology (*Human Rabies*) which shows how errors of diagnosis are likely to occur. On the 3d day of last May, a man was acci-

dentally wounded on the forehead and the chin by his dog, which was suffering with paralysis of the lower jaw. Three days after the dog died with general paralysis. Rabies was not suspected. On June 8 the man complains of neuralgic pains localized on the cicatrices of his old wounds. He has a slight degree of hydrophobia. On the 13th, suddenly, without chills or fever, he has pains and thrillings in the left arm with paresia of the musculature. This in a few days invades the right arm, the trunk and the lower extremities also.

Examined on the 19th of June, he has none of the symptoms of hydrophobia, has no difficulty in swallowing solids or liquids. His intelligence is normal. Cutaneous sensibility is normal. The pre-eminent symptom is a lax and complete paralysis of the muscles of the thighs, trunk and two upper extremities, with abolition of the cutaneous corresponding and tendinous reflexes, as well as of the superior and inferior cutaneous reflexes. Voluntary motility still exists in the muscles of the leg and foot. Plantar reflex is normal. There are no vesical or rectal difficulties. Temperature moves between 37° and 37.5° C.

These symptoms exclude all idea of rabies, and a diagnosis of *Acute Anterior Poliomyelitis* is made. During the following days the disease progresses, the paralysis invades the muscles of deglutition, the temperature goes up to 39.4° , the pulse to 170 and the man dies. The autopsy is made. The histological examination of the spinal marrow fails to show any of the characteristic lesions of poliomyelitis, no vascular dilatation, no hemorrhage, no disappearance of the radicular cells, no visible lesion of the anterior grey horn. But in the spinal ganglions there were found the cellular and pericellular lesions which are characteristic of rabies, which inoculated in rabbits confirm the nature of the case. There was no more doubt it was a rabid infection, and not one of acute poliomyelitis.

This case was interesting on several points of view:

1. The diagnosis was established by the histological examination of the spinal ganglions.

2. The complete absence of the period of excitation shows that dumb or paralytic rabies can occur from the start in man as well as in animals.

3. The long period of paralysis which lasted ten days shows that dumb rabies is a disease which has a slow evolution.

4. This case has developed clinically as one of ascending paralysis of Landry, whose pathological anatomy is yet imperfectly known.

* * *

NECROLOGICAL NOTICES.—Since the beginning of the year death has made a sad havoc among those members of the veterinary profession who have made for themselves a name in the pursuit of their professional duties.

The death of our dear departed Bell has received in some European papers friendly notices, showing that after all, scientific men are brethren all over, no matter in what country they may be. While America in February was paying her sad debt to the death call in losing Bell, England had to regret the departure of Joshua A. Nunn, Veterinary Colonel in the English Army. Born in Ireland, at Hill Castle, in 1853, he graduated in 1877 from the Royal Veterinary College and entered the army. He made campaigns in India, Afghanistan, British Burmah on different occasions, and in 1887 went to South Africa to study "horse sickness."

At the end of the African War he acted as general director of the veterinary service. In the last years of his life he has given his attention to journalism and contributed to the *Veterinary Journal* and the *Veterinary News*. Colonel Nunn was a good linguist, and was possessed of high scientific attainments. He was member of several societies.

The veterinary school of Utrecht lost in the month of March one of her professors, G. de Bruin.

Graduated in 1879 from that school, he carried private practice for fourteen years, and in 1893 was nominated by the Government of Holland to the Chair of Obstetrics. He had much difficulty in carrying on his work, but succeeded in making it

one of the best of that institution. He has published a work on Bovine Obstetrics and one on The Obstetrics of Small Animals. Prof. de Bruin died a victim of his profession. In operating upon the teeth of a horse he became infected, and his disease became complicated with typhoid troubles, which carried him off.

In Germany, in April last, the Superior Veterinary School of Munich lost Prof. Dr. Joseph Imminger. Born in 1854, after his graduation, he filled administrative positions for several years, and it is since eight years only that he became member of the Munich School, where he held the Chair of Surgery. Prof. Imminger was a very skillful operator and a clinician of first order. He published numerous articles in agricultural periodicals, and was preparing a work on Bovine Surgery when an attack of apoplexy carried him off at the age of fifty-four years.

In France, in the beginning of May, the School of Lyon had to mourn the death of Prof. Galtier, aged sixty-two.

After graduating from the Lyon School in 1873, he entered private practice for a few years and afterward joined the professorate, occupying up to the time of his death the Chair of Pathology of Contagious Diseases, Sanitary Medicine and Jurisprudence, for which he had prepared himself by special studies. Prof. Galtier wrote a great deal, and his publications are very numerous. His book on Sanitary Science, his treatise on Meat Inspection, his work on the Contagious Diseases, as well as his treatise of Veterinary Commercial Legislation and Jurisprudence are works which will remain classical for years to come.

But the name of Galtier has other reasons to be well remembered by veterinarians. Besides having been the first to demonstrate the inoculability of rabies to rabbits and thus giving to science a harmless subject for further experiments on that disease, it is to him that comes the honor of having been the first to show the possibility of *vaccination against rabies before or shortly after the bite of a rabid animal*. His method of vaccination, injection of rabid products in the veins, differed from that of Pasteur, but nevertheless the principle of the protection was established by him.

A. I..

THE A. V. M. A. MEETING.

In the short space of two months the veterinary profession of America will assemble in annual convention in Philadelphia. This is not, however, the first time for the association to meet in that city. If we look back into the history of the forty-five years of its existence we shall find that no less than two semi-annual, and one annual meeting, have been held in the City of Brotherly Love.

The first attempt at a meeting in Philadelphia was in 1870, when a semi-annual meeting was to have been held March 15 of that year. The records say, "no quorum," but as the child was only seven years old at the time, the neglect to transact business or to enter upon the deliberation or discussion of scientific problems may be put down to the natural condition of infancy.

In 1887, when the child had reached the period of maturity, another semi-annual meeting was held in Philadelphia on the 15th day of March. This was a "good" meeting.

In 1894, thirty-two years of age, the association met in annual convention in Philadelphia in the month of September. This was a "better" meeting.

Now, in 1908, in the full strength of its greater maturity and development, the A. V. M. A. is going to the same city. We predict that this will be the "best" meeting, in every sense of the term, ever held in Philadelphia—yes, in America. Everything at the present writing points to a meeting that will eclipse the best ever held on this continent, if not in the world. We say this advisedly, fully realizing what it will mean to excel the Kansas City meeting, as well as the best meetings held in foreign countries, for there are a number of extraordinary factors which are entering into and will be potential in contributing to the success of the forthcoming meeting.

The fact that the A. V. M. A. sessions will close in Philadelphia in time for the meeting of the Inter-State Association of Live Stock Sanitary Boards at Washington, to be closely followed by the International Congress on Tuberculosis, will

tend to materially increase the attendance at the respective meetings. The A. V. M. A. expect to have the honor of entertaining. at Philadelphia, some of the most eminent scientists of the old world.

Besides all this there is much to attract the progressive veterinarian to Philadelphia at this particular time, where an imposing wing, of what promises to be one of the most modern veterinary establishments in the whole world, is now nearing completion; to a state where the profession is organized to a man and where it is blessed by an intelligent and wise leadership; to a state where veterinary sanitary control work is under competent professional direction and where ample appropriations are made for carrying on the work; to a state that regulates effectually the practice of veterinary medicine and punishes men who attempt to ignore the prerogatives of the profession and violate the laws of the Commonwealth.

Pennsylvania has contributed a large share toward the development and upbuilding of the A. V. M. A. She has the proud distinction of having furnished three presidents—Huidekoper, Hoskins and Pearson—whose names will go down in the annals of veterinary history for what they have done and for their devotion to the best interests of the profession.

The fact that former President Hoskins is chairman of the local committee of arrangements is, in itself, sufficient guarantee of the thorough and satisfactory manner in which every detail will be arranged. He has associated with him on his committee a number of the kind of men who make for success. The neighboring State of New Jersey has appointed a special committee to wait upon Chairman Hoskins. with the object in view of rendering assistance in every way possible in the same fraternal spirit as Pennsylvania did in 1901. when the Veterinary Medical Association of New Jersey had the honor of welcoming the veterinary hosts to Atlantic City.

We publish elsewhere in this issue of the REVIEW, such data as Secretary Lyman is able to furnish at this time. together with

the program as far as is made up at the time of our going to press. In our next number we hope to be able to publish the program complete, names of officers and committees, portraits of officers, transportation rates, local arrangements and other information of interest and concern to the members of the profession. Get ready for Philadelphia and Washington.

THE VETERINARIAN AS A HORSEMAN.—On the occasion of the tenth anniversary of the completion of the famous New York Speedway, Dr. H. D. Gill, former President of the Road Drivers' Association, officiated as Grand Marshal at the annual Speedway Parade and Horse Show. Dr. Gill, driving the bay trotter, First Demand, led the line of march, preceded by the Speedway Squad of mounted policemen. Following the Grand Marshal were the officers of the association, each holding the reins over a fleet light harness horse. There were over one hundred fast trotters and pacers in line, divided into five divisions, the horses being grouped according to the character of the vehicles to which they were driven. As each driver passed the reviewing stand the judges, Mr. Francis M. Ware and Dr. F. C. Grenside, President of the Veterinary Medical Association of New York City, picked out the prize-winners and awarded the ribbons. The consensus of opinion was that the exhibition of light harness horses as a whole was better than at any previous New York Show, not excepting the National, at Madison Square Garden.

With the largest parade of the kind ever held in the state the Road Horse Association of New Jersey opened the season on the Speedway at Newark, May 16, which proved to be a most popular event. Four hundred horsemen participated in the parade and horse show. Aside from the personal interest of one thousand members of the association and their friends many other citizens gave abundant evidence that the popularity of the horse has not waned.

Among the vice-presidents is the name of Dr. William Diamond, formerly in the service of the Bureau of Animal Industry. Dr. Henry Vander Roest officiated as Grand Marshal to the satisfaction of everybody.

ORIGINAL ARTICLES.

SANITARY CONTROL WORK IN MINNESOTA.*

By M. H. REYNOLDS, *Professor of Veterinary Medicine, University of Minnesota.*

I have very willingly consented to discuss this subject because it is one in which I am very deeply interested. I believe the general subject of live stock sanitary work is certain to be recognized in the near future as one of vastly greater importance than many people now realize.

In order that I may not be misunderstood, I should add, perhaps, before saying more, that I am not now and have not for several years been in distinct personal charge of the work.

I was very willing to discuss Minnesota control work because I believe that it is as nearly ideal so far as plan of organization and general method is concerned as any similar work in America, but to be honest, I must add that our ideals of results are not reached by any means.

No difference how perfect a machine or how perfect the organization and general method of board work may be, its operation will surely be hampered by human imperfections of its members, and also by the shortcomings and human frailties of owners with which such a board must necessarily deal.

I may talk more freely of Minnesota because this is the work of which I am more intimately acquainted than with similar work of other states. Then, too, parents usually think their children are as nearly right and perfect as children can well be, so the Minnesota State Live Stock Sanitary Board which I helped to organize naturally appeals to me as being about right.

If I do lean a little toward Minnesota institutions, you will probably have little difficulty in detecting it, and in estimating about where the vertical would strike.

* A paper read before the Stockmen's Convention of Nebraska.

Importance—I can conceive of but two reasons for the existence of any live stock sanitary board or the office of state veterinarian. These are the protection of human health against the transmissible disease of live stock, and the protection of our live stock from disease and loss that may be prevented by intelligent sanitation.

Granting that either or both objects are or may be attained, then we have an important work.

No one will deny the great importance of this work; but sometimes it is worth while to ponder over what we already know. It is impossible to put into reliable figures an estimate of the value to this country of the sanitary work which but a few years ago eradicated foot and mouth diseases after it had become rather widely spread in our New England states. And this is vastly to the credit of our federal Bureau of Animal Industry.

Who can estimate and place in figures the dollars and cents value for the present and an indefinite future of the work which eradicated some years ago pleuro-pneumonia from the cattle herds of the United States?

The money spent by our government in eradicating these diseases can be but a trifle in comparison with the losses and difficulties that would have been encountered by reason of the presence of these diseases during a term of years.

Important discoveries in connection with the cause of Texas fever and the splendid work with this disease now under way in our southern states will serve to call attention to the possible vast usefulness of sanitary control work.

I will later give some figures and statistics showing something of what has been accomplished in my own state, and which may again call attention to the wise economy on the part of a state in appropriating generously for such work.

We have no reliable figures upon which to base the annual losses from hog cholera in the United States, but such figures, if they could be given, would unquestionably prove startling. I am satisfied that we have lost, within a single year, in Minnesota alone, from hog cholera, not far from \$1,500,000.00. Sup-

pose that it cost twenty or thirty, or even forty millions to eradicate hog cholera from the United States, the amount would be small in comparison with the amount of savings through a long term of years.

We are to consider not only the matter of dollars and cents for the owners. There is a more important phase of this question. I refer to the relations of many infectious disease of domestic animals to disease of the human being. For instance, many of our best authorities now agree that the infection of human tuberculosis is usually received through the digestive tract, and that an important percentage of these cases come by infection of the child, or even older persons, through contaminated bovine milk.

Veterinary sanitary control work includes meat and milk inspection. Here we have a subject of such vast proportion and importance that I will not undertake to discuss it in this connection, but merely call your attention to it. Think of the millions of children who use milk as a staple article of diet every day. Some of that milk is contaminated with the manure of tuberculous cows or with dust of a stable where bovine tuberculosis, or lumpy jaw is prevalent. The losses from carcasses condemned on account of tuberculosis at our great packing houses, and from carcasses of hogs that are also being condemned at these places, has within a few years become a matter of such serious importance that the live stock breeders, packers and agricultural papers are seriously considering the question as to what can be done about it. Plainly this work is worthy of our earnest consideration.

SANITARY WORK IN MINNESOTA.

History—Our progress as a working machine has been a process of evolution. In 1897 the writer was made a member of the state board of health, previously composed entirely of practitioners of human medicine. Soon after the innovation just mentioned we arranged for a committee on disease of domestic animals. This later developed into a veterinary depart-

ment of that board, and funds available for this work were increased so that our live stock sanitary control work began to assume creditable proportions.

Early in 1903 the veterinary control work was removed by legislation from the state board of health and given in charge of the present live stock sanitary board, consisting of stock men and veterinarians.

When this work began, in January, 1897, with the appointment of a veterinarian to membership on the state board of health, there was available for control work with infectious diseases of animals the sum of \$3,000.00 per year. At the next legislature this was increased to \$6,000.00; a subsequent legislature raised the amount to \$8,500.00, and successive legislatures raised our appropriation for this work to \$13,000.00, \$19,000.00, and \$21,500.00. The legislature of 1904-1905 gave us a special appropriation of \$30,000.00 for the succeeding bi-ennial period in addition to the standing annual appropriation of \$19,000.00, making a total for that bi-ennial period of \$68,000.00.

The legislature of 1906-7, in addition to our standing appropriation of \$38,000.00, gave us a special appropriation amounting to \$130,000.00 for control work, reimbursing owners, etc., and \$2,000.00 for the investigation of swamp fever, making a total for the bi-ennial period of \$170,000.00.

Some of my hearers probably wonder what our board is doing with this sum of money, and perhaps wonder also where the graft comes in. I can assure you that there is no graft about it, and no opportunity for successful graft by those who control the fund.

Board members do no field work, and, in fact, are especially prohibited from rendering any service to the board for which they may receive compensation. We do not even receive a per diem for attendance at board meetings, but only actual and necessary expenses.

I will explain later more in detail as to what we are doing with this money. Suffice it to say for the present that it will be

expended very carefully and as judiciously as a board of five stock breeders and veterinarians are capable of doing.

It will go in part for salaries of our executive officer, field veterinarians and other employees who are doing the actual work, a small portion for office expenses and a very large proportion of the entire fund to farmers and stockmen.

Organization—Concerning our organization, I may say that the Minnesota board consists of five members appointed by the Governor. It is specified that three of these must be financially interested in the maintenance of live stock in our state, and that two members shall be competent and qualified veterinarians, graduates of recognized colleges.

One membership becomes vacant each year, so that there is no opportunity under ordinary conditions for sudden changes in the membership and reversals of policies. The board is as nearly non-political as such a board could well be because there is no financial gain through membership, but rather a financial loss to the extent of the value of each member's time consumed in attending quarterly meetings.

As stated, board members receive no compensation, not even per diem—only travelling expenses. Hence positions on the board will not ordinarily be sought for any reason except interest in the work with a willingness to devote time to it without compensation. I consider this one of the strong features of the plan, and would not, under any consideration, approve a change which would provide the possibility of financial gain for board members.

The board meets quarterly for consideration of the work accomplished during the preceding quarter and to plan work for the future, and to consider proposed regulations, amendments, etc.

The board selects from outside its membership a secretary who is the executive officer to carry out the work as planned by the board or provided by law. The law provides that he must be a graduate veterinarian from a reputable veterinary college.

It is thus seen that we have a veterinarian in authority 361 days in the year, carrying out plans of the board and provisions of the law. He does not originate important policies or issue original regulations unless authorized by the board.

We have also an assistant secretary, a young woman who has been with the work from its first organization, and whom the board members consider about as valuable an employee as we have on the staff.

The board also selects the field veterinarians, of which we now have four, a veterinary bacteriologist, and such other help as may be deemed expedient. These are not appointed by the board, subject to approval of a governor, nor selected by any boss, with a board compelled to accept.

The duty of this board is clearly and generously specified as follows:

* * * "The board shall protect the health of domestic animals of the state, and carry out the provisions of this chapter, employing such means and making such rules as it may deem expedient to that end."

The only source of failure which the writer can see for a board organization in this way would lie in sheer incompetence of board members, and it is scarcely probable that any governor would appoint grossly incompetent men to places where there was neither financial or political gain or political influence.

The board, as thus far described, however, constitutes only a small central machine, for with this there is intimately associated, under carefully worded provision of law, about 2,500 local boards of health and health officers. In our state the township supervisors constitute ex-officio local boards of health, and these have certain important responsibilities in connection with our work.

It is expressly made the duty of local boards of health, and health officers, in the state, to co-operate with the live stock sanitary board in the prevention, control and eradication of

infectious diseases of domestic animals, as directed by the secretary of the state board or by any individual member of the board.

Two or more local boards may also be required in emergency to co-operate. It will thus be seen that we have agents in every township, village, town and city of the state, for whom the law specifies certain duties and who can be called upon by the state at any time for active assistance.

We also have a very satisfactory arrangement for co-operation with the federal Bureau of Animal Industry, through its inspectors at South St. Paul, and at various other places in the state where the government maintains inspection service. To illustrate this, if a lot of scabby sheep come into one of these places, they are promptly located by the government inspector and reported to our executive officer, together with all available information concerning the place from which they are shipped, if within the state. It thus becomes an easy matter for the sanitary board to locate the original outbreak and undertake the necessary work in suppression.

I think it will be clear that a board constituted like the Minnesota board should easily command the support of both the veterinary profession and the stock owners of the state, and when such a board does really efficient and economical work, it should have no serious difficulty in securing reasonable financial support from its legislature.

Important Features of the Law—The state board, also the local board, with certain restrictions, and within their respective jurisdictions, may quarantine or kill any domestic animal infected with or having been exposed to any infectious diseases.

Our state board is given a wide range of authority concerning killing or quarantining, importation, exportation of infected or exposed animals.

The law is explicit and severe concerning the importation of stock contrary to law or rules of the board, and provides a penalty of \$500.00 to \$1,000.00 for each offense on the part of railroads.

It is the legal duty of *any person* who knows of or has reason to suspect the existence of any infectious disease in any animals to notify the local board of health, and the latter, within 24 hours, must notify, in writing, the state board. Failure of either renders liable to severe punishment.

In case of animals to be killed, the owner is given all reasonable protection in the way of protest, appraisal, etc., but the protest does not delay the killing.

Tuberculous cattle or glandered horses are paid for when ordered killed and when the killing has been done according to law, which is very clear and explicit.

Penalties are sufficiently severe to prove efficient. Appraisal limits are fixed for cattle and horses. For cattle there is a certain limit, \$35.00, provided for grade or what we would ordinarily call scrub stock, and another limit, \$75.00, for pure bred and registered cattle. The limit for horses is \$75.00.

Rules and Regulations—The law already given, it does not seem advisable to attempt giving detailed information at this time concerning our rules and regulations and established methods of doing the work, but our secretary would be very glad to furnish sets of these to anyone who cared to pursue the study. A brief mention may not be out of order in this connection. For instance, we have a circular of information for local health officers relating to tuberculosis in cattle. These advise local health officers concerning action in case of suspected outbreaks of the disease and concerning the law relating to tuberculosis and concerning other regulations which pertain to this disease.

We have a circular of similar instructions concerning hog cholera and special circulars concerning the quarantining of hogs suffering from infectious disease; there are rules and regulations concerning glanders farcy, giving instructions to local health officers and field veterinarians, concerning the details of quarantine and concerning the use of malein and disposition of affected horses or mules.

We use a blank for reporting the disease of infectious animals which, when properly filled out as ordered by law, gives very satisfactory information.

We furnish a blank certificate in which there appears upon the veterinarian's certificate and the owner's certificate relating to stock for importation.

We have similar circulars and regulations concerning rabies, also regulations for the guidance of common carriers doing business in Minnesota, and I may say that our law is so stringent that the railroads are showing a very profound respect for it.

Methods—I will have to omit most of the discussion which I had thought of giving in connection with methods and will only call attention to the fact that years of experience have brought us more and more firmly into the opinion that it is good control work to do a large part of the work directly out from a central office, using field veterinarians in direct employ of the state, and on full time, rather than local assistance or deputy veterinarians as employed in other states.

If there are veterinarians present, I will ask them to remember that I am compelled to look at this matter at present as a veterinary sanitarium, rather than as a practicing veterinarian.

I think the reason for our conclusion will be very apparent after a few suggestions; for instance, it should be borne in mind that much of this work is necessarily disagreeable and brings the doer into unpleasant relation with the owner.

A man in employ of the state has no private practice to jeopardize and no friends to lose by going straight ahead and doing his duty. I ask you to remember, however, that it is a clearly determined policy of the board to do its necessary work in the most courteous and considerate way possible. I believe that a man in the employ of the state, who is constantly doing this kind of work, and has, perhaps, had years of experience, can do this with less friction, and even gain friends for our work, where one less experienced would have a great deal of trouble and make enemies for the board, and lose patronage in private practice.

Then, too, men who are constantly at this kind of work will necessarily be more familiar with a wide variety of infectious diseases other than glanders and tuberculosis.

Men who are employed by the state on full time can make very much more thorough and competent investigation of an apparently new disease and make a very much more intelligent report concerning it.

Our policy with glanders may be given rather briefly. The original information comes from a local veterinarian, health officer, owner or neighbor. If investigation shows the presence of what we call clinical glanders, *i. e.*, a case which may be recognized, by careful examination, these are killed and the exposed horses are tested.

Horses which respond to malein test and show any clinical symptoms, are destroyed after appraisal. The owner receives three-fourths of the appraisal and is paid by the state. Other horses which react to malein but do not show clinical symptoms are kept under a form of quarantine and subsequently retested.

We have had this plan on trial for a number of years. In fact, Minnesota was the first public authority, so far as the writer is able to learn, to adopt the policy of testing all exposed horses with malein. After years of experience we are unanimous in the opinion that this is a wise procedure, and that it is absolutely essential to any effective method of dealing with this disease. The question as to whether it is wise to quarantine horses which react but show no clinical symptoms may be debatable. Minnesota will probably continue this plan for the present, however. The only satisfactory alternative appears to be that of killing all reactors, with compensation for the owners. This would require a much larger appropriation, and there are other rational arguments against the plan.

Our policy with tuberculosis is somewhat similar. When a herd of cattle has been tested and reactors are found these are usually appraised at the owner's place, and when there is any considerable number, are shipped to South St. Paul, where they may be slaughtered under government inspection. A consider-

able percentage of the carcasses are passed, which results in a large saving for the state, inasmuch as the state pays the owner three-quarters of the loss, *i. e.*, three-fourths of the difference between the appraisal and the amount realized for the carcass. The appraisal limit for horses is \$75.00, for common cattle \$35.00, for registered cattle \$75.00.

Our work with hog cholera is along the lines of quarantine, coupled with public education concerning the infectiousness of the disease, and an endeavor to secure co-operation from owners, neighbors and local health officers. There can be no question but that an outbreak of hog cholera, under reasonably favorable conditions, will respond to proper sanitary measures. It is little to the credit of veterinary sanitation in practically every state in the union that hog cholera is ignored. Veterinary sanitarians have been operating on the idea that we can do nothing with it, and what is the use of trying.

Finances—During the present biennial period our board will have the serious responsibility of administering a fund of \$170,000.00, made up, in part, of a standing annual appropriation and in part of special appropriations.

To present the economy with which this fund is handled and the general proportions of various expenses, I call your attention to the fact that during the last fiscal year, Aug. 1, 1906, to July 31, 1907, we expended a total of \$79,121.06.

Of this there was paid to owners of stock.....	\$63,409.29
Salaries of entire working force, including executive officer, assistant secretary, field veterinarians and veterinary bacteriologist.....	10,577.56
Traveling expenses of employees engaged in field work	3,894.90
Office expense and miscellaneous laboratory expense	701.76
Total paid the five board members for the year..	138.65
Services of veterinarians not regularly employed.	398.90
<hr/>	
Total	\$79,121.06

During the current biennial period our fund will be used in similar proportion.

I would call your attention to this connection that the present comfortable condition of our board finances of \$85,000.00 a year is not a matter of mushroom growth, but rather of slow development. Our funds have passed through an evolution from \$3,000.00 up to \$85,000.00 a year, the increase having been gradual, which I think a decidedly safer procedure than large appropriations to inexperienced management. However, I would not advise that future boards organized on similar lines should begin with so small a sum as did the Minnesota board.

As the work grows there comes with it a very valuable experience in the way of administrative ability.

Some years ago one of our state legislatures became hypnotized and appropriated \$250,000.00 for a certain live stock sanitary control work in a small state where the live stock resources were quite secondary.

This led to a very unpleasant situation and to serious discredit of live stock sanitary control work in that state and section.

It is a matter of unanimous agreement among poultry men that a very good way to develop the skill and ability to manage a large poultry plant successfully is to begin with a few old hens and develop experience and ability as the flock grows. I am satisfied that this same experience holds true with sanitary control work.

Results—I can easily imagine that my hearers are asking does the state of Minnesota get value received for the money? Well, the live stock values we are trying to protect with these funds amount approximately to \$95,000,000.00. Let me call your attention to the fact that only small portion of the result of any sanitary board or health officer's labors can be put into figures.

There can be no possible way of measuring or definitely stating the harm or loss that might have resulted, had not outbreaks not been checked or threatening conditions promptly re-

moved. We may quote the number of tuberculous cattle or glandered horses that have been destroyed, but this, at the best, can only be considered as an index. The most important result accomplished are, certainly, the spread of disease checked, the financial loss averted and the number of human lives saved.

I will illustrate by a single point. We have had two demonstrated outbreaks of anthrax in Minnesota during recent years. In neither case was there spread of anthrax from the single farms whereon the outbreaks appeared. In order to appreciate the significance of this it is necessary to understand the very serious problem which frequent and widespread outbreaks of anthrax develop in other states.

Our men available for field work are as busy as men can be. Four of them are constantly on inspection service or out visiting reported outbreaks of recognized diseases, or investigating reports concerning supposedly new diseases. Four good men, well managed, in the field, must be doing an immensely important work.

To present the matter of results in another way, I would call your attention to the fact that there were tested in Minnesota, under the supervision of our board, during the fiscal year 1905-6, 13,707 cattle, of which there were killed 1,438. During the year 1906-7 there were tested 18,022, of which there were killed 1,165.

Our figures for work with glanders show as follows: Number of horses tested with mallein during the year 1905-6 were 3,322; killed, 606. During the fiscal year of 1906-7 we paid to owners of horses and cattle the sum of \$63,409.00.

The last government report, Bureau of Animal Industry, 1905, shows that Minnesota is by a considerable margin the largest user of government tuberculin, using approximately one-fourth of the total output in a list of 33 states for which report is made. This same report shows that we are using one-third of the total output of mallein, or four times as much as any other state in a list of twenty states reported, barring the District of Columbia.

It is not that we have more of these diseases than other states, but rather less, for Minnesota has been making an active campaign of this kind for several years, and there is no reason for supposing that in the first place Minnesota was worse contaminated.

Difficulties—Difficulties are many. Some problems are too big for our funds. It is difficult to prevent importation of diseased stock from other states into clean neighborhoods. It is difficult to get owners and neighbors to report instead of hide, trade off or sell. It is difficult to deal thoroughly and economically with glanders without having on hand a very large number of cases which it does not seem advisable to either release or destroy. There are numberless difficulties—difficulties great and grave—enough to make the battle very interesting.

A grave difficulty for the present and near future threatens to be that of preserving a rapid yet satisfactory and conservative progress in public sentiment concerning tuberculosis. There is a strong tendency toward radical and, perhaps, unwise action. We had a choice collection of freak bills in the last legislature, which proposed to deal with the subject of tuberculosis in cattle.

One of the chief difficulties comes in connection with infectious disease, which come over the line from other states; for instance, fresh infections of hog cholera come across the line from Iowa.

Until we adopted regulations which were later put into law, concerning the importation of certain horses from other states, we were constantly bothered with fresh outbreaks of glanders in the western portions of the state.

In our cities the chief difficulties are with glanders and tuberculosis.

The difficulties in our municipal work in connection with tuberculosis are chiefly in connection with the tuberculin test work. I cannot discuss them, or explain in detail how we are attempting to deal with them, but will suggest a few as typical; for instance: There is difficulty in permanently marking tested

cattle to prevent fraud; difficulty in arranging to have tested stables refilled with tested cattle; difficulty in having the herd from which milk is sold for the public supply tested frequently enough; difficulty in some cases on account of incompetence of employees used by the local board of health.

Present Situation—To briefly present the sanitary situation in our state, I must illustrate by selecting a few features which, if carefully considered, will be quite suggestive. Our state dairy association, at several annual meetings, during the last few years, has endorsed the tuberculin test without a dissenting voice and called upon the legislature to provide legal means whereby stock sold for breeding purposes should be sold with tuberculin test or subject to test.

A large proportion of our Minnesota breeders now insist on buying cattle on tuberculin test, or not at all. A large and rapidly increasing number of our cattle breeders are voluntarily having their herds tested, offering us more work and more expense than we can provide for.

St. Paul, Minneapolis, Duluth and a considerable number of our smaller cities now insist on tuberculin test of cows supplying milk for sale under license.

Our farmers have a much more intelligent idea concerning hog cholera now than ten years ago, when our work was commenced. It is now universally recognized as infectious and fairly well understood concerning its method of dissemination.

Our horse owners are not so commonly spreading glanders and making the work of dealing with this disease indefinitely more difficult and less efficient by hiding their suspicions, or by disposing of their glandered horses, and passing them along to infect fresh stables, since it is now commonly understood that the state will treat them fairly and they will be partially reimbursed if the suspicion is reported and the animal subsequently destroyed.

Progress in sanitary work with bovine tuberculosis during the past fifteen years has been painfully slow until the last very

few years. At present we are threatened with something like a landslide, which will require a great deal of tact and common sense to deal with wisely.

Suggestions—There are numerous and large portions of the veterinary sanitary fields which have never been touched. Our best work with hog cholera is yet crude and imperfect. Our work with cattle mange and scab is not as well organized and efficient as it might easily be. It has been altogether too much the custom for sanitary boards and state veterinarians to pay no attention to such diseases as hog cholera and infectious abortion because they present difficult problems. Veterinary sanitary work in connection with the meat and milk supply, particularly the latter, has never been developed as it must be in the near future.

I hope that hog cholera may soon be recognized as a disease which sanitary authorities should deal with vigorously and from which they may hope to secure satisfactory results. Anyone at all familiar with this kind of work knows that the control of hog cholera must necessarily be very expensive work, *i. e.*, expensive in total dollars used, but not necessarily expensive when the annual losses and the volume of business involved are considered.

Can there be any question but that the appropriations usually provided by states for veterinary control work have been inadequate and very unwisely so? Can there be reasonable doubt that this money, when intelligently used, is capable of bringing to the state an interest not earned by many of our public investments?

Consider for a moment the entire live stock values of Nebraska, and what would an annual appropriation of \$50,000.00 a year be for your sanitary control work?

Perhaps some of my audience is saying, "But how did you get so much money; that is what we are anxious to know." Well, in the first place, we have not so much money. The total money appropriated for veterinary sanitary control work in

Minnesota is not a large amount for the work. Our total live stock interest amounts to about \$85,000,000.00, and our appropriation is only .0007 of this amount, or .07 of 1 per cent., and it is important to remember that our live stock interests are not the only ones affected by the prevalence of an infectious disease, or even a threatening probability. Directly or indirectly, a large proportion of the other financial interests of our state are involved. Our appropriation is but trifling in proportion to the interests which we are protecting with it.

But you are still saying, "Yes, but how did you get the money?" I have been asked that same question by state veterinarians and sanitary officers of several states. The answer is simple. As already explained, it has been a process of evolution.

In order to secure large and increasing appropriations, continued through any number of years, it is absolutely necessary that the veterinary sanitary authorities must do efficient and conscientious work. Such funds must be handled with the most scrupulous honesty and managed so as to bring the best possible returns for the state making the investment.

It is necessary for such authority to have the backing of the live stock interests of the state. Repeated endorsements of live stock associations, state dairy associations, etc., are very useful.

We ask the legislature for money, showing the proper records of just what we have done with our money in the past and just what we expect to do with what we are asking for. We make it a point to secure the friendship and personal interest of each stock owner with whom we have dealings.

I believe it is a fair statement that the Minnesota board has the full confidence of Minnesota stock owners, and the loyal support of Minnesota veterinarians in its work, conditions which are absolutely essential. Is not this clearly shown by the financial support which has been accorded to our sanitary board by our successive legislatures?

We ask the legislature for money and our friends write in or telephone in that the sanitary board must have their appro-

priation, and that is all there is about it. We work hard and get our friends to work. The secret is out now. You have the entire formula.

If there is anything that Minnesota could do to help Nebraska to get an annual appropriation from the next legislature—to be increased gradually to \$75,000.00 or \$100,000.00 after a few years—we would be very glad to know it.

“THE REVIEW gets better with each number. It is the best veterinary publication in the world. Accept my sincere congratulations.”—[H. S. Richards, *Veterinarian*, Pittsburg.]

A HUMAN FAILING.—“Pa, what is the meaning of inconsistency?” asked Freddy.

“Inconsistency, my son,” explained pa, “means a man who growls all day and then goes home and kicks the dog for barking at night.”

PRESIDENT ROOSEVELT LOYAL TO THE HORSE.—When asked concerning a report that he intended to buy an automobile, the President is quoted as saying: “Not as long as there are horses.” It is an answer in perfect harmony with the accepted idea of the President’s temperament. His experience out West as a broncho buster, his experience in the East as a hunter, his habits in Washington as a horseman, prove him to be a lover of horsemanship above all else in the way of outdoor exercise. One of the most striking, as well as most familiar, photographs of the President represents him mounted on a favorite steed taking a high jump over a gate. This is characteristic. It is a veritable index.

The President likes the movement of the animal under him. He likes the animation and the spirit with which as a rider he comes into contact. He likes the struggle between himself and the beast, the contest between two varied natures. The sensitive, responsive, leaping, breathing thing under him refreshes and inspires him.

It is the sensation of the horseman that he clings to. Mere getting over ground is not all. If simply covering distance swiftly were the great desire the automobile would displace the horse in his affections. His devotion to the horse under the circumstances is as comprehensible as it is reasonable.

THE STATES AND VETERINARY ENLIGHTENMENT.

What the Several States Do, or Fail to Do, for the Furtherance of Veterinary Intelligence and Education.

By D. ARTHUR HUGHES, Ph. D., D. V. M., Inspector, Subsistence Dept.,
U. S. Army, Chicago.

America has always had, and now has, an unshaken faith in the intellectual enlightenment of the people through a public education which allows any person, native born or foreign born, to rise, if he will, on each step of the ladder, from the rudiments of any subject capable of being taught, to the highest university training. The agricultural interests and the veterinary interests are one. Hence, a national system of agricultural education having been adopted as part of the education for the general public, to be furthered by the individual states under federal aid, whether by popular methods or scholastic methods, it follows that state veterinary education will be an outgrowth of state agricultural education. As agricultural education advances in the several states the need for state veterinary education becomes more obvious. The history of agricultural education in this country, from the Morrill Land Grant Act of 1862 to the present time, bears me out in this statement. As agricultural enlightenment increases, particularly intelligence on animal industry, veterinary knowledge and service becomes more appreciated and state veterinary education follows.

Profoundly impressed as I am with these truths, I take it that every thoughtful American veterinarian interested in the drift of veterinary affairs everywhere in the land, will have his attention riveted on recent facts and intelligence on what the states severally are doing, or are failing to do, for veterinary enlightenment.

Lately it has been my pleasure to devote many months of study to the subject with a threefold purpose: to determine what is being done at present by each state and territory, whether

by scholastic methods or popular methods, for veterinary intelligence and education; to note any tendencies looking towards the establishment of curricula, in a separate state veterinary college, in a new college connected with the state university, in the agricultural college, or otherwise, for the purpose of training veterinarians for work within the state; and, finally, to offer any suggestions which presented themselves for action on the part of the various American veterinary organizations, looking towards the furtherance of veterinary intelligence and education in the commonwealths.

A complete report of this investigation will be found in the proceedings of the American Veterinary Medical Association for 1907. But the subject of the advancement of veterinary intelligence within the confines of the states, and the education of future veterinarians through the funds of the state exchequers—on the one hand, the popularization of veterinary intelligence; and, on the other, the schooling of men to be veterinarians, where the school is paid for by state taxation, scholastic veterinary education—should have interest for thousands other than the eight hundred men who, at present, comprise the American association. That is shallow and perilous thinking which makes veterinary education a mere matter of business venture on the part of an individual or a private corporation—shallow, because it does not see that the spread of veterinary intelligence and the fostering of veterinary education is a lofty question, in its very nature involving public interests; perilous, because it persists in putting private and individual interests above public interests, to the detriment of a profession, the dignity of which consists in its usefulness to public, as well as animal, health and wealth. Indeed, a close study of what the several states are doing for the furtherance of veterinary intelligence and education, if it demonstrates nothing else, will demonstrate the actuality that the education of men to care for the live stock interests is being recognized as a public duty, and that the doctrine is spreading that this education should be made art of the permanent policy of each state.

In reviewing the present relation of the state governments to veterinary education, we may as well inquire into the unpleasant, as well as the pleasant, features of the subject. The pleasant features may be spoken of as: things profitable for the veterinary profession in state activity at the present time for the furtherance of veterinary education and intelligence. Then we may speak of certain conditions in the states at the present time detrimental to the veterinary profession, or unprofitable for it.

I.—THINGS PROFITABLE FOR THE VETERINARY PROFESSION IN
STATE ACTIVITY AT THE PRESENT TIME FOR THE
FURTHERANCE OF VETERINARY EDUCATION AND INTELLIGENCE.

Veterinary Teaching—This naturally divides itself into two parts, the scholastic, or that for students who come to the state college or university in pursuit of veterinary knowledge, the popular, that done through various agencies for persons up and down the state who do not enter an agricultural or other state institution for that purpose. The scholastic work, the purpose of which is not, in the main, to train veterinarians, but to help agricultural students to understand veterinary principles, first aid, control work, etc., is given to winter students in agriculture, farmers or farm boys who spend two to six weeks at the college, to agricultural students spending two years, to agricultural students spending four years at the college. The winter man receives a few lectures; the two-year man takes much veterinary work the second year; the four-year man takes much veterinary work for two years and usually may elect more. The tendency is, by the addition of teachers, laboratories, hospitals, and other equipment, for the state agricultural college to offer more and more veterinary work in the junior and senior year or a post-graduate year. Later, the development is towards a three or four years' course in veterinary science leading to a degree. Colorado and Alabama are the latest to offer such a course, each beginning 1907. Courses leading to a veterinary degree were established in state institutions as follows: Iowa, 1879; Pennsyl-

vania, 1884; Ohio, 1890; New York and Washington, 1896; Kansas, 1905; Colorado and Alabama, 1907. The total number of winter and two-year agricultural students last year was 3,885; of four-year agricultural students, 2,638. When it is remembered that most of these were required to take work in veterinary science, it is easy to see how veterinary knowledge spreads, the veterinarian becomes appreciated. Such work builds up public opinion in favor of veterinary courses with degrees in agricultural colleges, state universities or separate state veterinary colleges.

Veterinary Investigations—These, for the states, are usually made by the veterinarians of the agricultural colleges. The experiment stations are usually departments of the agricultural colleges. When this happens to be the case, the veterinarian is professor of veterinary science and experiment station veterinarian, or merely consulting veterinarian to the experiment station. In some states the investigations are made by a separate pathologist (Arkansas), or bacteriologist (Michigan), or by a veterinarian aided by a chemist and bacteriologist (Maryland). If the work is done by a veterinarian, or under veterinary direction, it usually redounds to the good of the veterinary profession.

Veterinary Sanitary Work—The veterinarian of the agricultural college, working individually for the commonwealth, or in connection with a state board of health, or state sanitary commission, is apt to have a strong hold on state veterinary sanitary work, usually as state veterinarian or assistant state veterinarian (Alabama, South Carolina, South Dakota, North Carolina, North Dakota, Kansas, Indiana, Virginia, Washington). In some of the southern states the college, through its veterinarian, has control of live stock sanitation in the state. This brings very heavy burdens upon that state officer; but he gloriously shoulders them. In many of the states the veterinarian of the agricultural college does a vast correspondence on animal diseases, makes diagnoses or pathological determinations. All these things strengthen veterinary interests and incite appreciation of veterinary work in the states.

Veterinary Extension Work—In many states the veterinarians of the agricultural colleges have written short popular reports, or discussions of diseases causing havoc among live stock, and have had them scattered broadcast. Farmers' institutes have been organized in each state and territory under the direction of the state secretary of agriculture, or the experiment station officers (the usual thing), to give farmers the benefit of popular talks by experts. These have aided in the propagation of veterinary intelligence. The veterinarians of the agricultural colleges and experiment stations give lectures at them on control of diseases, or simple remedies, or they make demonstrations. These assemblies of farmers are now well organized and thousands attend the numerous sessions in all corners of the states.

Veterinary Publications—In the body of my paper, published in the Proceedings of the American Veterinary Medical Association, 1907, I submit lists of the veterinary publications of each state, as far as they could be learned, done during the last few years. The dissemination of information on veterinary matters, whether in pamphlet form, bulletins, press reports, or articles for the newspapers, is, to speak veraciously, enormous in quantity. The volume of state veterinary papers depends chiefly on the fruitfulness of the minds of the veterinarians and the financial aid given by the states for that end. The United States reports show that, for the last year alone, six and one-half millions of copies of papers on agricultural topics were sent out by the several states to a mailing list of 751,000 readers. When one remembers that most of the states produced one, to three or four, veterinary papers, and that many thousands of these papers were sent out, it is easy to see that not the smallest part of the total of six and one-half millions of copies of bulletins, press reports, and other pamphlets, distributed by the agricultural departments of the states last year, were veterinary papers. The state veterinary officers are learning the rich results which are to be obtained by incessant pamphleteering on veterinary subjects.

State Veterinary Buildings and Equipments—It would be an interesting thing to collect data on buildings and equipments held by the state agricultural colleges and experiment stations and other state institutions, for veterinary purposes. The states are in possession of veterinary hospitals, laboratories, lecture rooms, museums and collections sufficient to carry on the veterinary work that they advertise. Though most of us do not know about it, the state legislatures are granting moneys for further veterinary equipment. For instance, Texas agricultural college has just received an appropriation of \$5,000 for a veterinary hospital, Kansas agricultural college has obtained from the state a few months ago \$70,000 for a veterinary building. Though the munificence of the legislature to the state veterinary work of Pennsylvania excites our warmest admiration, \$200,000 having been voted by the state legislature during the last two years for buildings alone.

To summarize, the states are doing a vast work for the furtherance of veterinary education and intelligence—in the popularization of veterinary knowledge through the agencies of the press and the lecture platform, through veterinary investigations and sanitary work; most of all, perhaps, by the propagation of veterinary principles in the required work at the agricultural colleges, where the student body, what is to be the most intelligent farm element, is fashioned in a high appreciation of the veterinarian and his work. The duty of each state is to train the veterinarians it needs for the work within its own confines. If a state needs men it should train them; not call on other states, or a veterinary college elsewhere, to send it men. A number of the more enlightened states already have started this work, others are within a step of a full college course, still others are advancing towards that end. Let the states educate their own veterinarians. Let the state institutions, however constituted, and the state officers who train the veterinarians, be responsible to the state government for the adequate equipment of the veterinarians for their life work. Let each state round out its veterinary ideals for itself, stimulated and guarded by the leading

minds represented in the American Veterinary Medical Association, now and as time goes on.

II.—CERTAIN CONDITIONS IN THE STATES AT THE PRESENT TIME DETRIMENTAL TO THE VETERINARY PROFESSION, OR UNPROFITABLE FOR IT.

I. The attention of veterinarians throughout the country is hereby drawn to the fact that, in a number of states, unqualified men, those not trained in the medical sciences (and therefore not veterinarians nor doctors of human medicine) are writing papers on veterinary subjects at the experiment stations. In my investigation I was careful to inquire into the "official titles, duties and work" of those in the agricultural colleges and experiment stations who have been writing papers on veterinary subjects, and I found, in several instances, unqualified men doing the work for the state experiment stations. I have carefully examined the Hatch and Adams Act, under which the experiment stations were established and endowed, and I declare openly that in my opinion the permitting of unqualified men to do such work is contrary to the spirit and purpose of those acts, and I called upon the American Veterinary Medical Association, in Kansas City, last autumn to see that the proper authorities of the association draw the attention of the Secretary of Agriculture to the state of things and to inquire what his interpretation of the law is in this case. Consequently the following resolution was passed unanimously by the association last September:

UNPROFESSIONAL WRITERS OF VETERINARY BULLETINS.

Whereas, In a number of the states men not graduates of recognized veterinary colleges are at present writing bulletins on veterinary subjects and are sending them out as state publications from the state experiment stations, therefore be it

Resolved, That the proper officer of this association ask the Secretary of Agriculture what is his interpretation of the Hatch and Adams Acts in this matter and whether it is, in his opinion, in conformity with the federal law.

If, in branches of the federal service, where veterinary knowledge is called for, for example the United States Meat Inspection Service, graduates of recognized veterinary colleges are the only ones admissible, the first question to be determined is, the legality or illegality of disbursing parts of the federal grants, authorized in the Hatch and Adams Acts, to men not graduates of recognized veterinary colleges, to render pseudo-professional service, in lieu of graduate veterinarians, should the director of any experiment station, in his blindness, see fit to employ one. It is to be hoped that the Secretary of the American Veterinary Medical Association, who seems to be the proper person to communicate with the Secretary of Agriculture in this matter, will be able to get a decision, that the association may act accordingly. It seems likely that the present Secretary of Agriculture, who is well known to be a friend of the veterinary profession, the grand old man who is executive officer of the Department of Agriculture, who took cognizance of the opinions of the national association when the question of a successor to Dr. Salmon came up for settlement, will give wise consideration to the proper interpretation of those portions of the Hatch Act which refer to the veterinary work proposed for the experiment stations and the accountability of the directors to him.

The Hatch Act reads: "That it shall be the object and duty of such experiment stations to conduct original researches or verify experiments on the physiology of plants and animals, the diseases to which they are severally subject, with the remedies for the same * * *."¹ This is the first part of the first sentence of the first section of the law which details the object and duty of the experiment stations. The important place, at the beginning of the section, in which reference is made to research in veterinary physiology, pathology and therapeutics, emphasizes the importance of those subjects in the mind of the framer of the law. How the research work, called for by the law, can be done other than by an accomplished veterinarian,

¹Public—No. 112, Sect. 2, Approved March 2, 1887.

passes my understanding. The law requires that the person who does research work on the physiology, pathology and therapeutics of animals, shall embark on original lines, as that is his bounden duty, and, as far as he is concerned, the object of the experiment station. The abstruse questions, which arise in experimentation of this sort, cannot be thought out by any other person than a man thoroughly trained in the medical sciences bearing on domesticated animals.

The work of unqualified men on veterinary subjects can only be compilation or hodge-podge at best. The judgment of unqualified men on facts in veterinary medicine is not professional and may be a menace to the interests of live stock. This is a form of quackery, and intensely so when such men take it upon themselves to write on contagious diseases. This kind of thing has been going on in Arkansas, Georgia, New Mexico, possibly, West Virginia, possibly, and in Wyoming. There are two excellent veterinarians doing work for the state in Arkansas, Drs. Dinwiddie and Lenton, yet the director of the experiment station, W. G. Vincenheller, has written press bulletins on Texas fever, work which should have been done by the veterinarians. Georgia has an excellent state dairyman in Professor C. L. Wiloughby, a man who commands my respect for his large intelligence; yet even he, I feel, would admit that it would have been better if a graduate veterinarian did the strictly veterinary writing for Georgia instead of himself. New Mexico and West Virginia are suspicious. In Tennessee that enlightened entomologist, Professor H. A. Morgan, has done excellent work on the Texas fever tick. The station of which he is director now has a veterinarian, who collaborates with Professor Morgan in studies touching veterinary science. Yet in 1906, after the appointment of Dr. Jacob as veterinarian in 1905, the director published a bulletin on "Cattle Tick Eradication," when the qualified veterinarian could have done the work. Wyoming has, in the person of G. E. Morton, M. L., B. S., "Assistant in Animal Industry," a man who paraphrases the works of Dr. James Law on "Abortion" and "Scours in Calves," and that of Dr. G. H.

Glover on "Poisonous Plants," sending them out under his own signature in "The Ranchman's Reminder," seemingly an agricultural college paper, as so much work on veterinary science done for the state. The question is not, is the work of these men good and useful in itself, but *is it true to the spirit and purpose of the Hatch Act, and should not veterinary work in the experiment stations of the states, more particularly veterinary research work and the verification of experiments, be done by a professional man who devotes his life to that work?*

2. A number of the states have no veterinary department in their experiment stations and no veterinarian on the force. The plea, in excuse for this kind of thing has been, that, under the Hatch Act, the funds were inadequate, and that the grants were used in experimental work along other lines. The attention of the veterinary medical associations of each state, and of the large body of American veterinarians, should be drawn to the fact that this excuse is no longer applicable and that the time is ripe for the veterinary profession to see to it that experimental work, along the lines indicated in the Hatch Act, be carried on *in each state and territory*, as well as by qualified men. Under the Adams Act, which became law 1906, the federal grants, for each experiment station in each state, are to be gradually increased each year for five years, beginning 1906, from \$15,000 per annum until that sum reaches \$30,000 per annum.² Here is an excellent opportunity for the veterinarians of the states, through their professional organization, to push their claims and to demand that original investigation or verification of experiments in veterinary physiology, pathology and therapeutics be undertaken, if not already done, in the state experiment station, by a thoroughly qualified graduate veterinarian, receiving payment from funds granted under the Adams Act. As the moneys granted under that act must be devoted entirely to research, each experiment station should have a veterinarian within five years.

²Public—No. 47, Sect. 1, Approved March 16, 1906.

Montana and Idaho, through this benefaction, will place veterinarians in their experiment stations. West Virginia, Florida, Connecticut, New Hampshire and Wyoming should do the same thing, if the provisions of the Hatch Act and the Adams Act are to be carried out. As the experiment stations, in these states, are connected with the agricultural colleges, and as veterinary experimentation and research would not be burdensome, the professors of agriculture in them would be relieved from teaching veterinary subjects, which is now outrageously saddled upon them. Veterinary work, in those states, will then not be perfunctory, as it is now, but be specialized and intelligent. There is a smack of quackery in the announcements, at present, for instance, of Professor Clotier, of Florida, that he lectures on veterinary science; of Professor J. J. Hooper, assistant professor of animal industry in Kentucky, that he talks on the theory and practice of horse-shoeing; of Professor E. L. Shaw, associate professor of agriculture of New Hampshire, that, among other things, he talks "on holding a post-mortem" and "infectious diseases affecting farm animals, their causes and methods of treatment"; of G. E. Morton, assistant in animal industry, Wyoming, who lectures on "veterinary medicine and therapeutics." Surely it is difficult enough for a trained veterinarian to hold a good intelligent post-mortem, without an associate professor of agriculture attempting to do that work, or, at all events, attempting to try and teach men to conduct one. When the blind attempt to lead the blind, both will fall into the ditch—agriculturalist and student will fall into confusion.

In brief:—

1. Persons, not graduated at recognized veterinary colleges, should be prohibited from feeble and futile attempts to do research work in veterinary physiology, pathology and therapeutics, at the experiment stations.
2. Researches, in these veterinary subjects, should be installed in the experiment stations, where none are now to be found.

THE DISPOSITION OF TUBERCULOUS CATTLE.*

By Dr. G. A. JOHNSON, Government Inspector in Charge, Sioux City, Iowa.

In presenting for your consideration some thoughts upon the disposition of tuberculous cattle, I shall assume that you are all familiar with the disease, its character and importance. For this reason it will be unnecessary to burden you with a discussion of this phase of the subject, further than to state, that it is a peculiarity of tuberculosis that extensively diseased animals may, and often do, appear to be perfectly healthy, and it is this peculiarity which makes the handling of the disease such a difficult problem. Or to put it in other words: The great difficulty in dealing with tuberculosis lies in the fact that most men cannot understand or will not believe that an animal that eats and drinks heartily, that looks and acts as if healthy, that grows or lays on flesh readily, can be seriously diseased, yet this is the case. Animals, apparently healthy, are often tuberculous. When the average stock raiser comprehends this, the solution of the problem of the control and eradication of this baneful scourge will be more easily solved.

I base this statement upon the fact that whenever any acutely contagious disease, such as anthrax, black-leg, Texas fever, etc., make their appearance, steps are at once taken to stamp them out. If such action should be taken with these, it is much more important that similar action should be taken with tuberculosis, which causes an annual loss in this country many times greater than all the other contagious diseases together, and which is now allowed to continue its ravages with practically no action being taken to eradicate it, or even to control its spread. How do you account for this peculiar condition? I explain it in this way: The acute diseases produce a train of symptoms showing clearly that the animals are sick, and the usually large and rapid death

*A paper read and discussed before the Interstate Breeders' Association.

rate demonstrates the necessity of prompt action. With tuberculosis it is different. The disease progresses very slowly and the symptoms are practically invisible except in the last stages. In the one case all understand the animal is diseased while in the other, the average man does not comprehend the condition and is loath to believe that the animal is diseased.

I am glad to say, however, that progress is being made, and that the average stock raiser is beginning to grasp the situation. The raiser of healthy stock is beginning to wonder why he should continue to help pay the losses of his neighbor who is raising diseased animals, for this he does under the present system of marketing.

Before taking up the principal part of my theme I wish to direct your attention to one very essential and vital point, the diagnosis of tuberculosis. In eradicating or controlling the spread of acutely contagious diseases, which have a short and somewhat definite period of incubation (the time elapsing after an animal is exposed, before it presents symptoms of the disease), it is not absolutely essential that an accurate diagnosis be made, because the disease can usually be stamped out by quarantining the infected herd or herds until the disease has run its course. But with a disease that has no distinct period of incubation and one that develops as slowly as tuberculosis usually does, quarantining is not practical, more especially when the disease is so widespread and so prevalent as tuberculosis is. Therefore the first essential step in any plan looking to the control or eradication of tuberculosis is a correct and accurate diagnosis. This is absolutely essential in order to become reasonably certain which animals are and which are not affected, and thus make it possible to separate the diseased from the healthy cattle.

With our present knowledge of tuberculosis there is but one accurate method for diagnosing the disease in the live animal, and that is the tuberculin test. Strange as it may seem tuberculin, when properly used, is one of, if not the most accurate diagnostic agents known to medical science. Hence we may state that the first essential in the work of controlling or erad-

icating tuberculosis is to test the cattle of infected herds. This work should be done by thoroughly reliable and competent men, preferably under the direction and supervision of the state veterinarian.

The testing of animals is a comparatively simple process in itself, but it leads to the very serious and important question: What shall be done with the diseased animals after they have been discovered? The two general plans that have been and now are being generally followed may be termed the "slaughter method" and the "Bang method."

The slaughter method has been variously modified at different times and places, but the one central principle has been that the diseased cattle must be destroyed within certain periods, according to the conditions prevailing at the time and place of the test. The cattle may be slaughtered at once or they may be fed for a time and then slaughtered. In some instances the cattle are appraised at a valuation of healthy stock. They are then destroyed by the state, burned or buried, and a certain percentage of the appraised valuation is paid by the state.

In other instances the cattle are appraised as above and then sold for slaughter, subject to post-mortem inspection, the state making up the deficiency between the fixed percentage of the appraised value and what the cattle bring for meat. In still other instances the owner is compelled to sell his affected cattle for slaughter, subject to post-mortem inspection without any reimbursement from the state. In the latter case the owner receives only the meat value of the affected cattle. All these methods are more or less wasteful and unsatisfactory, especially when dealing with valuable breeding animals. It has been demonstrated that the disease usually progresses so slowly that most animals will live from two to five years after becoming infected, especially when the cattle are kept under favorable conditions rather than under conditions favorable to the tubercle bacilli.

During most of the lifetime of tuberculous animals they are capable of breeding and the cows will raise their calves and give

milk nearly as well as if they were not diseased, and yet, strange as it may seem, such animals are the ones that generally spread the disease to healthy individuals.

Taking advantage of these facts, Prof. Bang, a veterinarian of Denmark, worked out a method known as the "Bang method," whereby tuberculous cattle may be safely kept so long as they prove useful. They are not slaughtered until they begin to show physical symptoms of the disease or become unprofitable. Under this method a tuberculous herd, by means of the tuberculin test, is separated into two parts, a healthy and a tuberculous portion. These herds are then kept separate and under conditions that will prevent the disease being carried from the affected to the healthy cattle.

When a cow in the tuberculosis herd drops a calf it is immediately taken away from the dam and fed upon the milk of healthy cows or upon the milk of its dam after having been thoroughly sterilized. Thus the healthy herd is gradually built up, while the tuberculosis herd gradually grows smaller and smaller, until the disease is finally eradicated from the farm.

By a wide application of this method tuberculosis is gradually being eradicated from the herds of Denmark without great cost to the government, or serious loss to the owners other than the trouble incident to keeping two herds upon the same farm under proper conditions. While the method has been followed with gratifying results in Denmark and some other European countries it is not very well adapted for this country, because of our different conditions and of our different methods of stock raising. At any rate it has not as yet found much favor in the United States.

Most breeders do not have the time, the inclination, or sufficient knowledge of sanitary science to enable them to successfully carry on the work, without the supervision of an expert. Another class of breeders do not wish to be burdened with the trouble and expense of keeping two herds.

Again many of our herds are so small that they would not be profitable if divided and kept in two separate and distinct places.

Perhaps the objection most frequently advanced against the Bang method by the breeders of pure-bred cattle in this country is the fear that it would ruin their business if the public became aware that their herds were affected. This arises from the belief that there is a general prejudice against animals coming from herds known to have been affected and especially against young animals from tuberculous stock, on the grounds that if the animal is not diseased at the time of sale it will be more liable to contract the disease. While this principle is true to the extent that animals from tuberculous progenitors may be more susceptible to the disease when brought in contact with the germs, it is not true if such stock is kept away from them. It should be borne in mind that tuberculosis cannot be produced unless the germ of tuberculosis is introduced into the system, and consequently, when such animals are kept in healthy herds the possibility of their contracting the disease is very small. It makes, however, a very plausible point of objection to the introduction of any method looking to the control or eradication of the disease.

Another point: The Bang method has found but little favor among state or federal officials, because the expense of maintaining the necessary supervision of the infected herds, to enforce the proper carrying out of the work, and to prevent the unscrupulous from taking undue advantage of conditions, would be so large as to be burdensome. For these reasons the slaughter method has been the one most in vogue in this country, but it has been demonstrated that this method is ruinously extravagant, and in some respects detrimental to the cattle industry, because of needless destruction of many animals that are valuable for breeding purposes.

With these facts in mind it has occurred to me that many of the objections to both the Bang and slaughter methods can be obviated by the farmer and breeder leasing their tuberculous breeding cattle to the state or county upon the increase plan. The plan in general would be as follows: To have a specially arranged farm in various sections of the state or in each county

if necessary. In this connection it might be stated that most counties now have a farm commonly known as the "Poor Farm," a portion of which might be set aside for this purpose. In case this should not be practical another farm could be secured by purchase or lease. The state veterinarian should test all herds that are known to be infected or that the owner might request to have tested, and upon completion of the test all tuberculous animals of special breeding qualities, but free from physical symptoms of the disease, should be at once removed to the county farm, while those showing physical symptoms of the disease or that do not have valuable breeding qualities, could be sold for slaughter under the usual conditions, thereby at once removing all tuberculous cattle from the farm. After having removed the reacting animals, the stable, sheds, etc., should be thoroughly disinfected; and it might also be well to dip or spray the animals with an antiseptic, so as to destroy as nearly as practical, all of the germs about the healthy cattle and the premises.

After the herd and the premises have been freed from the tubercle bacilli, care should be exercised that no diseased animals are introduced into the healthy herd.

The reason for slaughtering the cattle that have no special breeding qualities and those presenting physical symptoms of the disease, is self-evident—such cattle would not pay for their keep.

It would be immaterial so far as the general plan is concerned whether the state does or does not give compensation for the stock that is slaughtered. But personally I believe that better results would be obtained if the stock was appraised as if healthy and the state was authorized to pay the owner the difference, if any, between what the animals brought at slaughter and a fixed per cent. of the appraised valuation. The state or county would feed and care for the stock placed upon the county farm, for which it would receive an equitable percentage of the increase, such as is customary in leasing healthy cattle, while the owner would receive the remainder. The division of the stock could be made at the end of each year. If it would pay the owner to

keep on breeding this diseased stock on his own farm, which in the meantime would more or less rapidly spread the disease to his healthy stock, it would seem that it would pay better to have it bred upon the county farm, where the most favorable conditions could be maintained, and the disease be kept from spreading to healthy animals. While it would probably cost some more per head to raise the stock under restricted conditions, as the state or the county would have to raise them, the fact that these herds would be managed under the latest and most approved methods, the net returns would no doubt balance, if not exceed, those of the average breeder.

It would be necessary under this method for the state or county to go to some expense to properly equip farms, but this need not be large as no expensive buildings would be needed. The principal item of expense would be the proper fencing of the farms so as to keep the calves and other stock from coming in contact with the diseased cattle, and the erection of needed shedding to protect the stock from inclement weather, and a plant for sterilizing the milk for feeding the calves.

Under proper management the farms should be self-sustaining even with tuberculous stock. But if they were not, it appears to me that this expense would be much less than that of any plan of slaughter and reimbursement that would be anywhere near adequate to meet the demands of the average breeder, or to meet the expense of official supervision under the Bang method.

Under any form of the Bang method, practically none of the diseased cattle ever recover sufficiently to be returned to healthy herds. So it would be understood that cattle once placed in the county herd, would remain there until removed by death or for slaughter.

The proceeds of all slaughtered animals would revert to the owners. Competent men should be employed to manage these farms under proper sanitary rules and regulations formulated by the state veterinarian and approved by the State Department

of Agriculture or the Governor. It should be one of the duties of the state veterinarian to see that the sanitary regulations were properly carried out and any manager failing or neglecting to follow such instructions should be immediately removed.

In advocating this plan I am aware that some will take exception to it on the ground that the tendency will be for some parties to make political capital out of it; that it will be too expensive; that competent men cannot be found to manage such herds; that good results cannot be obtained with such stock; that the right types of animals will not be mated, etc., etc. In reply to such criticism it can be stated, without fear of successful contradiction, that if nothing is done to control or eradicate this disease until the items of politics and expense are eliminated, tuberculosis will have full sway so long as any susceptible cattle are in existence. Or to put it in another way: tuberculosis is so widespread and so prevalent, it enters more or less intimately into so many different phases of our national business that it is impossible to make any general attempt to control or prevent its spreading without government aid, and when this is asked, the political pot begins to boil.

Regarding the interference it might cause with the plans and ideals of some breeders, it must be granted that it might temporarily check line breeding, but it should be remembered that if but a small per cent. of the herd were affected, while it might retard development, it would not destroy it. On the other hand if a majority of the herd were affected line breeding could be followed with the cattle in the county herd, at any rate the interference would not be so great as though all the affected cattle were slaughtered.

Among the advantages of such a plan over the slaughter or the Bang method, it may be stated that it would obviate all danger of diseased animals infecting healthy cattle, and this is the principal object of any method, and the one that can bring this about with the least possible expense is the best. It would practically preserve the full breeding value of all animals, ex-

cept in the case of some special line breeding as referred to above. It would afford a perfect segregation of the animals into herds of 150 to 200 head, that could be handled much more economically than could a diseased and a healthy herd on each farm where tuberculosis might be found, as is done under the Bang method. Nor would it necessitate the needless sacrifice of valuable breeding animals as is done where the slaughter method is followed. Furthermore, it would afford especially good opportunities to work out many yet unsettled problems relative to tuberculosis in particular, and sanitary science as applied to cattle and cattle raising in general.

I have thus given you the general outlines of my plan. I might go on citing points in its favor and burden you with details, but I think enough has been said to throw the question open for discussion. I may be too optimistic in this matter, but from my present knowledge of the disease and the general conditions pertaining to it, this plan appeals to me very forcibly. On the other hand I wish to state that if it impresses you as being impractical and visionary I hope that you will not hesitate to point out wherein it is weak and impractical, because if I am in error, the sooner the fact is demonstrated the better it will be for all concerned.

ADDRESSED TO HIS DOG.—My dog, you haf a schnap. You vas only a dog, and I vos a man, but I vish I vos you. You effry way haf the best of it. Ven you go mid the bed in you shust durn around dree times and lay down. Ven I go mid the bed in, I haf to lock oup de place and vind oup the clock, and put de cat out, and undress mineself; and my vife she vakes oup and scols me, den de baby cries und I half to walk him oup and down, den maybe ven I shut go to schleep, it's time I get oup again. Ven you get oup you stretch yourself, und den scratch yourself a couple of times and you vas oup. I haf to light the fire, and put on de kettle, scrap some mid my vife, already, and maybe I get some breakfast. You blay around all day, and haf plenty of fun. I haf to vork all the time and haf plenty of trouble. Ven you die, you is dead—but ven I die I haf to go to H— yet!

PROTECTIVE VACCINATION AGAINST BOVINE TUBERCULOSIS.

BY PROF. H. STRELINGER.

Translated by DR. WILFRED LELLMANN, Professor at New York University.

The general fight against the most widely disseminated of all infectious diseases, tuberculosis, makes it everybody's duty to use all ways and means at his disposal whereby the spread of this "disease of the people" can be prevented. In this fight we shall reach our end only if physicians and veterinarians work hand in hand, supplementing each other by utilizing in their practice all the experiences gathered in the course of years.

That only a mutual proceeding of both professions can bring about success, is evident from the fact that the bacilli of human and animal tuberculosis are congenious. Even if the single types of tubercle bacilli show differences in their cultural properties and virulence, the pathological changes caused by them in the human or animal organism are more or less the same. Furthermore, pearl disease bacilli have frequently been found in children as well as in diseased adults. This fact has gained importance through the determination of "atypic" tubercle bacilli forms,* since these atypic forms, as so-called transition-forms, gradually conform to the organism of the individual that harbors them, the foreign tubercle bacilli by and by adopting the properties and forms of those bacilli that usually occur in this particular organism. This, too, might serve as an explanation for the difference in the degree of virulence of different tubercle bacilli types.

As is known, an infection with tubercle bacilli can take place in different ways. Very frequently by the intestinal tract, hence the greatest danger of infection in infancy may be looked for in the feeding of infected milk. If relatively few cases of de-

*Tuberculosis, August, 1907: "Contribution to the Present Status of Tuberculosis Research." by Lydia Rabinowitsch.

cided tuberculosis occur in sucklings, while the number of cases increases in the course of growth, the theory is accepted more and more that the tubercle bacilli which have found their way into the organism of the suckling can remain there *latent* for a long time and that the presence of special conditions is required for the development of the disease.

The excellent writings of Pirquet concerning the so-called early diagnosis of tuberculosis will be of great help for the determination that tuberculosis infection in most cases can be traced back to infection in early infancy. The hypersusceptibility of the infected child-organism, ascertained by Pirquet, toward his vaccination method, will prove an existing tuberculosis infection also in *those* cases, where even at post-mortem examination a macroscopic, that is, clinically perceptible, tuberculosis could not yet be proven. In such cases, cultures and animal tests would surely explain the phenomena of the hypersusceptibility, and, simultaneously, the latency of the tubercle bacilli. Probably the granular tuberculosis virus discovered by Much, which cannot be colored according to Ziehl's method, may be of aid in solving this question.*

In connection with the above statements it affords me pleasure to make known the results of bovovaccinations performed by us since five and a half years. I hope that my strictly objective report will prove of some help in this important matter.

With us, bovovaccinations were commenced on September 15, 1902. After the Estate Administration had convinced themselves of the value of this method it was decided that protective vaccinations be introduced gradually on all estates. The bovovaccinations have been performed in strict adherence to the directions of Professor von Behring. The following rules were observed:

Usually only such two to three weeks' old calves were vaccinated which, after a veterinary examination, had been found in good health. Three months after the first vaccination the

* Brauer's Contributions to the Clinic of Tuberculosis, Vol. VIII., No. 1.

calves were vaccinated for the second time. Prior to each vaccination the calves were watched for one to two days and their temperature was taken. After vaccination the taking of temperature was continued usually eight to ten days. The weight of the animals was ascertained about every month. The vaccine used was supplied exclusively by the Behringwerk in Marburg. The instruments and utensils employed in vaccinating, prior to their use, were sterilized by boiling in a 2 per cent. solution of lysol, in a sterilizing machine especially constructed for this purpose. During sterilization, the required amount of the vaccine in 1 per cent. sterile salt solution was converted into an emulsion of the greatest possible uniformity.* As is known, 1 immunizing unit (I. E.) is required for first, and 5 I. E. for the second vaccination. Usually, injection was made intravenously in the left jugular vein. Before inoculation the site of injection was washed with the 2 per cent. warm lysol solution at our disposal, and afterwards well rubbed with pure alcohol.

All the animals vaccinated in this manner were subjected, every year, to veterinary clinical examinations and tuberculin tests. But the tuberculin test was applied not before at least one year after the last vaccination.

The yearly tuberculin tests were invariably performed in the following manner:

1. The animals to be tuberculin-tested are kept in their usual stalls 1 to 2 days prior to vaccination and their temperature is taken three times daily. The temperatures and the result of the clinical examination are entered in the tuberculin test records.

2. The injection itself is usually performed evenings. Young animals, up to two years, receive a dose of 0.3 c.c.; from this age upward, 0.5 c.c. tuberculin is injected subcutaneously; 7 to 8 eight hours after the vaccination the taking of temperatures begins and is done six times, with intervals of three hours.

3. In estimating the results the highest temperature prior to injection is taken, due consideration being given to the fact

* Since some time the Behringwerk supplies the ready-for-use emulsion.

that the initial temperature of young and not fully developed animals usually is 39.5°C .

4. Until now we have divided the results of tuberculinization into four classes; for instance, an animal receives the classification: O=If the temperature remains about normal after vaccination. I=If it shows a rise of not more than 0.5°C . II=If the rise of temperature remains below 1.0°C and in young animals does not exceed 40°C . III=Every animal showing a temperature above 40°C .

Further, in judging the temperatures, that important experience was borne in mind, that only such rises of temperature are to be considered decided typical fever symptoms, in which the temperature rises slowly, and, after reaching its highest point, gradually returns to the normal.

With these principles in mind, we obtained the following results of tuberculinization, end of last and beginning of this year:

End of 1907 and beginning of 1908 a total of 686 animals were tuberculin tested; the oldest of these animals had been bovinovaccinated already about $5\frac{1}{2}$ years ago. With the youngest more than two years had elapsed since bovinovaccination.

In all there reacted 66 animals, hence the average percentage of reacting animals was 9.6.

The animals, separated according to the time of bovinovaccination, showed the following tuberculin test results:

I.—Of 59 animals, bovinovaccinated $5\frac{1}{2}$ years ago, there reacted 6, or 10%.

II.—Of 173 animals, bovinovaccinated 4 years ago, there reacted 24, or 13.8%.

III.—Of 305 animals, bovinovaccinated 3 years ago, there reacted 22, or 7.2%.

IV.—Of 149 animals, bovinovaccinated 2 years ago, there reacted 14, or 9.4%.

From these dates it is evident that our oldest animals, bovinovaccinated $5\frac{1}{2}$ years ago—in spite of ample infection opportunities—proved their acquired immunity in an excellent man-

ner, which fact appears to us all the more important, since we know from experience *that prior to the introduction of boovaccination, already the two-year old animals, raised artificially, showed 50% reactions*, and these infection conditions increase proportionally with the age of the animals.

In estimating the above result the very important fact must be taken into account that bovovaccinated animals may be transferred from one estate to the other, irrespective of the infection conditions and without the slightest sanitary precautions, which is of the greatest importance for agricultural practice.

In connection with the above results of our tuberculin tests, I shall in the following report several other valuable observations which we were enabled to make, thanks to the extraordinary generosity of the estate owner.

To avoid reiteration, I must here refer to the report published by me at the time of the International Veterinary Congress, which convened in Budapest in 1905, and shall repeat only the most important points.

I. A lot of bovovaccinated animals was slaughtered and dissected. Five animals, in which bovoaccination had not been performed at the same time, were perfectly healthy and free from tuberculosis. The sixth (107-516), which was from a strongly reacting dam, showed a strong reaction already at the first boovaccination. Six months after bovovaccination there occurred general swelling of the glands, and on slaughtering general subacute tuberculosis of the lymphatic glands was found. The greatly changed peribronchial glands proved to be the source and oldest tubercular lesions, and *these* changes in all probability can be traced back to the time *prior* to bovovaccination. It seems probable that in this case an already existing, latent tuberculosis has entered an acute stage through bovovaccination. This observation causes me to again call attention to the fact, that, according to the directions, if possible only very young and healthy animals should be subjected to bovovaccination.

II.—For purposes of control, two animal groups were placed into one of our most severely infected stables and kept there to-

gether with the old stock for nine months. After this time all bovovaccinated animals proved to be healthy, while of the non-vaccinated but also artificially raised calves there reacted 50% to tuberculin. As to the further fate of these two animal groups, I wish to state that at the recent tuberculin test all non-bovovaccinated animals, with the exception of one, reacted, while of the bovovaccinated animals one (375) showed reaction. This reacting animal was bovovaccinated September 15, 1902, and, as one of the first of our bovovaccinated animals, *received only one bovovaccination*.

III.—In connection with these observations, I shall report a recently made, similar experience. Because of their physical condition, five animals were not vaccinated, but 15 other animals from the same herd were subjected to the treatment. At the last tuberculin test it was found that every one of the five non-vaccinated animals reacted, while the fifteen bovovaccinated calves did not respond to the test.

IV.—For the sake of experiment, another animal group was infected intravenously, by means of a highly virulent pearl disease culture. Two of these animals were highly immunized; three had received the typical bovovaccination. The first two have now—five years after infection—proved absolutely healthy and non-responsive to tuberculin; two of the animals bovovaccinated in the usual manner, which were slaughtered one year after infection, proved to be highly tuberculous, and the third animal of this group was further observed. During the first and second year after infection it reacted positively to the tuberculin test. During the last three years it did not respond any longer. A clinical examination proved it to be sound and it has had several healthy calves.

V.—Twenty-one young cows were placed with one of our oldest and most severely infected herds, partly for reasons of convenience, partly in order to observe, how the bovovaccinated animals would be influenced by conditions strongly conducive to infection. In our recent tuberculin test two of these animals

showed a slight reaction, but a clinical examination proved them to be healthy.

VI.—On the estate R. Sömjen the calves were raised under natural conditions, remaining in the infected stables with the reacting dams, which also nursed the calves. The only protection which we accorded these calves was that they were bovo-vaccinated at as early an age as possible. The result of the tuberculin test in these animals was just as favorable as on the other estates where the animals had been raised artificially.

Considering these facts which prove the favorable influence of bovo-vaccination against the danger of tuberculosis infection and which manifest that the method of protective vaccination can be easily and successfully employed under the most ordinary agricultural conditions, it seems highly opportune to again and again direct the attention of our interested parties to Behring's protective vaccination.

Our experiences teach that bovo-vaccination imparts to cattle, for $5\frac{1}{2}$ years, a decided resistance to infection since, as pointed out above, by means of bovo-vaccination the percentage of the $5\frac{1}{2}$ -year-old animals reacting to tuberculin has been reduced to about 10%, while prior to the adoption of the protective vaccination 50% of the artificially raised 2-year-old animals reacted to tuberculin.

If it is further taken into account that we obtained so favorable a result also in herds where the bovo-vaccinated animals remained together with highly tuberculous cows, it is evident that the protective vaccination may be employed under ordinary agricultural conditions with favorable results; and we are further warranted in the assumption that the resistance to tuberculosis infection imparted to the calves, since it has endured for over five years, will continue for a longer time.

Therefore, I consider the recently advocated yearly repetition of the protective vaccination absolutely superfluous. According to my opinion, *even one repetition of the vaccination should not be made by any means*, in order to exclude every possibility of an infection through the milk.

Instead of a repetition of the vaccination, I would recommend hygienic measures as far as agricultural conditions permit, and I shall in the following briefly mention the methods for suppressing tuberculosis, based on hygienic principles, viz., the methods of Bang and Ostertag.

By the Bang method, so-called clean cattle herds have indeed been obtained, but these remain free from tuberculosis only during the time the animals are kept from contact with tuberculous cattle. If breed animals from such clean herds are placed with other stock, they will soon succumb to tuberculosis. The great agricultural difficulty and the financial sacrifices connected with the Bang method may be the reason that the genial idea of Bang is taken hold of but slowly in practice, and that agriculturists manifest an increasing interest for the Ostertag method, because the latter is simpler and its requirements are more easily carried out.

Without entering into details, I would like to point out the most important principles of Ostertag's method, viz., by systematic clinical examinations, the actually tuberculous animals are to be eliminated, and the calves raised artificially. The above mentioned disadvantage of Bang's method, viz., the infection danger which threatens animals from clean herds after their removal to other herds, naturally is present also with Ostertag's method, and it will be of the greatest importance if cattle can be not only protected from tuberculosis infection, but if there can be imparted to them an active resistance. The latter is obtained by bovovaccination, and it is therefore desirable to use a combination of the Ostertag method and Behring's bovovaccination. I shall endeavor to enumerate the most important points of such a combination method:

I.—As main condition, I consider the careful bovovaccination performed exactly according to Behring's directions.

II.—The usual tuberculin test of the adult animals vaccinated according to von Behring may be dispensed with and need be resorted to only in special cases; but exact clinical examinations of the entire herd should be made in certain intervals.

III.—The tuberculin tests of the calves, according to Oster-tag, can be omitted in the combination method, since the bovo-vaccine injections act as tuberculin tests. (I wish to state that we have frequently made the observation that calves showing the typical reaction upon bovo-vaccination later proved to be infected.)

IV.—With a combination of both methods the artificial raising of calves demanded by Ostertag can be dispensed with as well, since our experiences have proven that under ordinary conditions calves develop just as favorably as calves raised artificially if they have been bovo-vaccinated at an early age. It seems to me that this is an advantage of the combination method which should not be underestimated since in many cases an artificial raising of the calves is attended with difficulty.

In the above I have given the main requirements for the combined employment of both methods, and it merely remains now to point out as a further important task for the attainment of our end, to obtain cattle herds free from tuberculosis, to provide for stables answering all hygienic demands, and that the animals as far as agricultural and weather conditions will permit, are kept outdoors.

BREAKING HIS ATTACHMENT.—City Man—That's a fine bulldog. Does he ever become attached to strangers?

Farmer Brown—Occasionally he becomes attached to tramps, but we break the attachment with a chisel and a monkey-wrench. —(*Tit-Bits.*)

EXHIBITORS REPRESENTED BY VETERINARIAN.—The REVIEW notes with pleasure the fact that G. Howard Davison, D. V. S., Millbrook, N. Y., Secretary of the National Association of Exhibitors of Live Stock, has scored an important point in the interest of live stock exhibitors in obtaining a favorable decision from the managers of the New York State Fair to drop the ten per cent. entry fee on live stock which has been imposed for a number of years. This is a concession which will be much appreciated by exhibitors and will undoubtedly materially increase the number of exhibits at Syracuse in September.

PRESIDENT'S ADDRESS.

BY DR. GEO. H. GLOVER, Fort Collins, Colorado.

Delivered Before the Colorado State Veterinary Medical Association.

Once more we are privileged to assemble in these spacious parlors, through the courtesy of the Gentlemen's Riding and Driving Club.

This meeting marks the fourth mile post in the life history of this the first and only state association of qualified veterinarians of Colorado. May its journey, which was inspired in good will and confidence, be not interrupted by apathy or discord. On the contrary, let us now resolve to be magnanimous in spirit and gracious enough to at all times put down, and keep down, petty differences, and, with the glad hand all around, work for the honor and betterment of our chosen profession.

Man will never attain to his highest and best in this or any other field of human activity until he learns to appreciate and appropriate and ingraft into his very life the essence of this fundamental principle of social ethics: "He serves his own interest best who works for the common good of all."

We have in this association a code of ethics, implied, not written. We are morally bound as qualified veterinarians and honorable men to be steadfast and loyal to each other.

I believe in the law of evolution and that it is universal, except in case of the one who cherishes a grudge or tenaciously holds a grievance. In such a one there is moral stagnation. His better nature is sure to become atrophied from innuendo and his soul tainted by the gangrene of conflicting emotions.

We cannot help but admire the man who in life's relentless struggle, having been staggered by a blow (even though it were below the belt), does not lie down because the game is not fair; but, on the contrary, comes up smiling and fights on to a more signal victory, because of contending with greater odds.

He who runs may read, in the stratified rocks of the ages, the story of man and his evolution on this earth for a million and a half years. The last decade marks a very small period indeed of this time, but nevertheless an epoch fraught with greater progress than any similar period in the history of the world. I feel sure that I shall not be accused of exaggeration when I say that our profession has taken greater strides forward during this time than any other, for the reason, I presume, that it has had farther to go. From the superstitious vender of quack nostrums to the ardent student of therapeutics; from the devotee of omens, charms, and the caprice of jealous gods, to faith in self and the inexorable laws of nature; from the uncouth tippler whose office was in the rear of Murphy's saloon, to the cultured, scholarly gentleman, an honored citizen of the community. Such has been the evolution of the veterinarian.

While we are inclined to look with complacent pride upon the "modern veterinarian" and are pleased to draw favorable comparison between him and the "hoss doctor" of old, still, we should be charitable, and many of us are in position where we must be, having graduated from the old two-year schools. But the end is not yet, for the possibilities in the realm of comparative medicine are beyond conjecture.

We have as yet scarcely taken a look into the great problems awaiting investigation which so vitally concern the animal wealth and the public health.

If we wish to enjoy a more liberal patronage, to extend our sphere of influence individually and collectively, we can do it; but there is a price, and the price is not only efficiency and absolute integrity, but it means that we must stand shoulder to shoulder and insist that every man lives up to a well understood standard of honesty, sobriety and professional efficiency. Our profession will never be honored and respected, neither will we as individuals, until we can get together, cut out petty jealousy and fearlessly ostracize anyone found guilty of unprofessional conduct. Certainly, we should not by our silence seemingly sanction such conduct.

I believe that Emerson's essay on compensation is the greatest thing ever written, and I believe that in the long run we each and all get just about what we deserve. Society will honor the profession and promote the individual that serves it best.

I am scolding a little, but I also have words of praise, and I believe just grounds for expressions of gratitude. In so doing, I am reminded of an erratic lady who lived neighbor to us one time. As certain as the sun would rise in the East, and invariably before it would have set in the West, this woman would lose her temper and lambaste her boy unmercifully, and as soon as he would begin to cry, she would become sorry, and the closing scene was always the same, viz., a sickening mixture of osculations, tears, and expressions of regret all round. Yes, society promotes those who serve it best, but destiny awaits around the corner with a stuffed club for the man who is a "quitter." Let us not neglect our duties to this association. Let us make a special effort to be present at every meeting, do our part and meet our financial obligations. I shall favor dropping those from the roll of membership who are in arrears for more than two years. It takes a little money to keep this organization alive.

I appeal to you from the standpoint of business integrity, as long as you are members of this association, meet your obligations cheerfully. If you are dissatisfied with the management you have this day the opportunity to elect new officers. If you do not care to continue as members, you are nevertheless honor bound to square yourself on the books.

The educated veterinarian of character and ability is at last receiving the patronage and recognition which he so justly deserves. It is with a feeling of wholesome pride and real satisfaction that I remind you of the fact that several of our members have been invited to read scientific papers before medical associations. Others have been elected honorary members of such societies. One at least is a member of a City Council and all are making good.

It is time we were laying plans for future legislation. It is evident to all of us that our present law is inadequate. It is so grossly deficient that the State Board of Veterinary Examiners, after taking legal council, have not dared to risk a prosecution under it.

There are those of our members who favor a law granting certificates to practice as non-graduates, those who have been practicing within the state for ten years and who have heretofore been denied any recognition.

The effect of this law would be, in substance, to stamp such men as non-graduates, but not interfere with them; to make the law, in other respects, so stringent as to absolutely prohibit the influx of pretenders from other states, and prevent us from being in the future as we now are, the dumping ground for "quacks" from all over Christendom. Such a law could be passed without serious opposition, and while it would afford us no protection at present, conditions would be no worse than now, and it would provide a secure and safe adjustment of the perplexing problem in the future.

Here is another problem to which I wish to call your attention, and I most earnestly solicit your careful consideration. If deemed appropriate, I would like to see the adoption of suitable resolutions. It has been said that opportunity knocks once at every man's door in a lifetime. The time is propitious. Public sentiment is ripe. I refer to the matter of an appropriate state law regulating the inspection and control of tuberculosis animals.

Already we have succeeded in getting pure food laws enacted in several of our larger cities. This work is praiseworthy. It is in the interest of humanity, for it is rightly looked at from the viewpoint of protecting the animal wealth as well as the public health.

I feel justified in sounding one word of warning; let us be careful not to injure the cause by charging exorbitant fees, by doing anything that savors of graft, or that will in any way

subject us to suspicion, of anything but the most honorable and honest motives.

The State Board of Agriculture has created a Veterinary College, as a Department in the State Agricultural College. As the head of that department, I am naturally solicitous as to its welfare. I assure you that I shall appreciate and at all times solicit your council and advice, and I trust that we may at all times merit your confidence and good will. I deplore the fact that most of you are so far away that your services are not available.

This school under the new regime was started auspiciously, and, generally speaking, is progressing satisfactorily. It is the only school of its kind between San Francisco and Manhattan, Kansas.

Notwithstanding the fact that the matriculation requirement of high school graduation is a step in advance of other veterinary schools in America (with two exceptions), yet we have enrolled thirty-four students, and could not without much inconvenience have accommodated more.

In one particular, this course of study is to be looked upon as entirely different from others. In the ordinary vocations of life a question is seldom asked as to a man's preparation for his work, whether within college walls or without; it simply remains for him to make good—he must deliver the message to Garcia. In the profession of medicine it is quite different, for here he is uncompromisingly judged by his co-workers, according to the reputation of the school from which he receives his degree.

The limited source of veterinary science in vogue at the Agricultural College three years ago was dropped none too soon. Several young men have completed the two-year course there, and, graduating in reputable veterinary colleges with honors one year later, found themselves in an awkward predicament in not being eligible to the civil service examinations or to the American Veterinary Medical Association.

The requirements for good standing in this connection, among other things, is a two-year bona fide attendance in a recognized veterinary college. We made no pretensions at that time of maintaining a regular veterinary school (not granting a degree), and while our graduates did us, as well as themselves, much credit by winning special honors, yet they were caught by a technicality and were without standing, having only spent one year in a recognized veterinary college.

This department has now launched out as a full-fledged veterinary college, and we shall need to look to our educational standing that we may compare favorably with older schools. I assure you that I fully appreciate the moral responsibility devolving upon us to see that such a standard is maintained, as will insure our graduates recognition everywhere. To rank among the list of accredited schools, we must have at least three qualified veterinarians on the faculty and a term of three years of six months each year. The curriculum must be satisfactory and the subjects therein named must be actually taught and with a degree of efficiency that will be beyond question. And lastly the equipment must be ample and a large clinic is indispensable.

We have now twenty on the faculty, six of whom are veterinarians, two physicians, and among the balance are such men as Carlyle, Gilette, Headden and Paddock, men of national reputation in their specialties.

Our hospital is full most of the time. The equipment is fair and will be made first class in every detail. Our college term is nine months, making twenty-seven in all instead of eighteen as required.

The number of students enrolled matters little to us, but it does concern us much that our graduates have had every advantage and, by their gentlemanly bearing and efficient service, will be a credit to their alma mater.

To raise the standard of veterinary medicine in this country it must be evident to all that the laying of a secure foundation by high school graduation is the first requisite; the next is a

cultural training along with a thorough knowledge of the art and science of veterinary medicine and surgery. In this way only can our profession ever expect to aspire to the dignity and the respect of station in life to which its nobility and importance justly entitles it.

This college is yours as much as it is mine. You pay taxes for its support. I feel great need of your sympathy, your support and the benefit of your experience and wise council.

There are many things I should like to say to you, but I feel that I have already taken too much of your valuable time.

Let the motto of this meeting be good fellowship, with a firm resolve to be big enough to eliminate every unkind thought, and with our faces ever toward the rising sun, hopeful of a better day and a greater ability to improve our opportunities. I thank you for the confidence bestowed in electing me your president, and I bid you all Godspeed.

FOR the first time in the history of the Veterinary Department of the University of Pennsylvania the alumni baseball team beat the graduating class on Commencement Day, June 17, 1908. McNeil, Jones, Ridge, Felton, Formad, Harger, Mackie and Marshall were foremost among the professional rooters.

THE government is extending its efforts at tick eradication on an extensive scale in the State of Oklahoma. This service is under the direct supervision of Dr. Leslie J. Allen, who has now in the field a large corps of veterinary and lay workers. The work is done on the co-operative plan between the state and the B. A. I., and the veterinarians on the force are made state as well as government officers for this purpose.

UNUSUAL CASES.—Veterinarians Rogers and son, of Woodbury, N. J., report that during the past month they have had two cases of parturient apoplexy under conditions rather uncommon. Case No. 1 was in a cow having complete eversion of the uterus with parturient paresis. The other was a case where typical "milk fever" occurred before calving. Both patients died despite a strenuous oxygen and general treatment.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

POISONING FROM LOCUST BARK.

By C. A. WALDRON, V. S., Tecumseh Mich.

Reported to the Michigan State Veterinary Medical Association.

Did you ever have a case or a number of them all similar and you did not know what was the cause until the animal was better or until he had gone where he could not feel the effects of your ignorant torture? Then, when you have come to a rational understanding with yourself, found out what the real trouble was, and it seemed to you that you ought to have known that in the first place, if you are at all honest with yourself, if not, with the world at large, don't you feel like saying, "That it is one on me?" Well, that was the way I felt when I got through with the cases that I am about to relate. Perhaps it would have been better had I waited and reported this under the head of diseases, but wishing to make a more lengthy report and desiring to help the secretary with his program, I take this opportunity to present this case to you:

Along about the middle of October I came home one evening about eight o'clock and found an order to call my brother by 'phone. I did so, and this was what he told me: It seemed that he had driven his fine work team, full sisters, four and five years old, weighing about 1,300 lbs. each, to the planing mill that day. They were blanketed and tied near the mill and allowed to stand for perhaps an hour and a half, after which they were driven to the mill and kept standing for an hour and a half longer until their load was ready. They were then driven directly home, where, as the weather was mild and they were not warm, they were put in the stable without blankets. This was about 3 P. M. Nothing wrong was noticed until about 7 o'clock, when it was noticed that they were not eating, that they were standing with heads down, extremities cold, respiration normal and pulse weak but normal in number. As he was unable to get me then, he blanketed them, bandaged their

legs and gave them ten drops of aconite per hour, as he was afraid of lung trouble. When I called he had just given the second dose of aconite. He said the extremities were warm and they were easy, but did not care to eat. I thought he was more scared than hurt, as he would be scared if they looked crossways, so I told him so and told him to call in the morning as I thought that they would look better to him in the morning and they certainly would to me. In the morning he said that they appeared better but still did not care to eat, and asked what I thought of giving a pill for he believed they were bilious, the mucous membrane being of such a yellowish brown color. He did so, but did not give them anything else. I 'phoned him again that evening, and he said that they appeared to be about the same, would take a little hay and a few swallows of water once in a while, and that they stood as if resting with head downward, ears drooping, lying down some but not more than natural. Their breathing was normal and pulse almost imperceptible. So we left them that night, thinking that as soon as the pill operated they would feel better.

About one o'clock that night my brother's wife came for me as they had not been able to get us by 'phone, and as she said that the heart of one of the horses was beating so hard that it shook the horse at every beat and could be heard outside of the barn, I thought that I had better get there as soon as I could. I did so, after first calling him and telling him to give it one-half pint of whiskey. These were the symptoms as I found them: The horse was in a state of extreme lassitude—if you will permit me to use the term—for the whole body seemed to be relaxed. This was not, however, as might seem to be the case, from the effects of the whiskey, for the other horse, which had received none, acted in exactly the same manner, excepting the spasmodic action of the diaphragm which they had thought was the beating of the heart. The pulse when found was very flabby and lay drawn out, so to speak. I don't remember ever feeling such a one before. It felt as if the heart were full to overflowing and could only force the blood out very slowly, the beat being twenty-five per minute. The temperature was normal, respiration 10 and was rather sonorous, which was caused, I think, by the relaxed condition of the nostrils. As soon as possible I gave her one-half dram each of fluid extract of digitalis and nux vomica, intervenous, and then went on with my examination. The bowels and kidneys had acted as

normal, the mucous membrane wherever examined was congested and presented a bluish, rusty, yellow appearance, if you can conceive of such a color. The lips inside of mouth were somewhat swollen as from the congestion of the capillaries. A slight clear ptyalism was noticeable at all times. The most marked symptoms was in the dilation of the pupil of the eye, which was as large as was possible for it to be. I thought my brother had given an excessive dose of belladonna, but he said he had given only what I had told him. By auscultation, I found the heart in a very weak condition, and it almost seemed that I could hear the blood run back through the valves, but in this I, of course, was mistaken.

We had a very perceptible so-called venous pulse in the neck. The sound was caused by the action of the diaphragm. It was greatest when the ribs were at their fullest expansion and could be heard most distinctly at a distance of ten feet. I tried to locate or rather find out what produced the sound, but in that I am as ignorant now as I was then. The convulsions were about twenty per minute. The other mare's symptoms were almost identical except she was not so weak, and there was no irregularity of the diaphragm. It was nearly three weeks before they were themselves again. From the appearance of the eye and the membrane of the mouth, we were led to believe they had gotten some poison. In questioning about where the team was hitched at the mill it was found he had tied them to a young locust tree which had come up by the stump where a locust tree had been cut down a few years before. This was a sapling of about four inches in diameter and had probably made a very rapid growth and the bark, from that reason, was tender and easily peeled. They had done a very good job of peeling, but as they had their bits in they were not able to swallow much. The poison obtained from this bark is, in my opinion, the cause of the trouble.

The second, or, rather, third case, which appeared about ten days after, was a seventeen-year-old brood mare whose colt was weaned from her two months previous. One morning she was found in the stables suffering to all appearance from a case of lymphangitis. The man that owned her telephoned me if he should give her a pill and apply the same wash that I had left for another case that I had treated for him a few weeks previous. He did so, and I heard nothing from her until the next day, about noon, I got a message to come as soon as I could, which I did. I found the mare down but able to rise, but not

willing to stand very long; she was very lame in the leg that was swollen the day before, but the swelling was all gone and no soreness in any part of the leg from manipulation; the other symptoms were almost identical with those of my brother's horses, bowels moving freely but not watery, nor were they at any time. I gave this mare digitalis and nux vomica in connection with muriate of ammonia.

The next morning I did not see her, but as she was no better I had them give her six ounces of whiskey and thirty grains of quinine every three hours alternately with the other medicine. She died about 6 P. M., and they said that her heart pounded so that it shook her all over and they could hear it outside of the barn with the door shut. I was not at the post-mortem, but the mucous membrane throughout all the whole alimentary canal had the same appearance as that of the mucous membrane of the mouth, and no inflammation was discovered except a small patch of the blind gut, as the man that opened her, expressed it.

This mare had trimmed up a young growth of locust trees that were set the spring before. It is needless to say that this man has no more locust groves, and neither has a great many more in that section.

Now, I am willing to say that I did not know that locust bark was poison and that I did not know what the trouble was with these horses, nor what to do, so I consider it as one on me, and since that time I have searched high and low for something on this subject and all that I find is what is in the U. S. Pharmacopœia, which, says Z. T. Emery, in the N.Y.N.J., January 22, 1887, he reports the poisoning of thirty-three boys from chewing the bark of the locust. In the mild cases he reports flushed faces, dryness of the throat and mouth, and dilation of the pupils. In severe cases was added epigastric pain, extremely feeble intermittent heart beats and stupor.

For my future uses I have deducted the following symptoms: Extreme lassitude, which includes almost imperceptible pulse and which, when found, is weak and prolonged; respiration less than normal by one-third and sonorous; temperature normal, no pain, no appetite, mucous membrane congested, of a blue, rusty, yellow color. Mucous membrane of the mouth, some swollen, caused by the congestion of the capillaries; slight ptyalism, and above all, the dilation of the pupil of the eye; in fact, I should judge, we have nearly the same symptoms we get in belladonna poison.

INTESTINAL DIVERTICULA.

A. T. KINSLEY, M. Sc., D. V. S., Pathologist, Kansas City Veterinary College.

The accompanying cut illustrates a diverticulum of the ileum of a two-year-old heifer. The specimen was obtained and presented to the museum of the Kansas City Veterinary College by Dr. C. I. Walch, Inspector, B. A. I., Kansas City, Missouri.

The specimen contained two diverticula about three meters apart. The one shown in the cut was about two meters anterior



From photograph showing intestinal diverticulum.

to the ileocecal valve and the second diverticulum anterior to it. They occurred on the side of the intestine opposite to the mesenteric insertion; one was 8 cm. and the other 10 cm. in length, and the capacity of either of them was about 400 cc. Their microscopic appearance and microscopic structure was the same as normal intestine of the same location, with the exception that the walls of the sacculations were not quite as thick as the normal intestinal wall and the muscular layers were partially substituted by fibrous tissue.

These diverticula are not the so-called "Meckels Diverticula," which are the remains of the omphalo-mesenteric duct. Meckels diverticulum is usually single and occurs within a meter of the ileocecal valve, and the attenuated walls and fibrous substitution in these are indicative of post natal formation.

Post natal diverticula result from constipation, calculi, weakening of the intestinal wall by disease, parasitic invasion, etc.

Intestinal diverticula are of considerable moment, whether they are of ante-natal or post-natal origin. Those occurring in the small intestine do not cause as much disturbance as those occurring in the large intestine because the content of the small intestine is of a liquid consistency and that of the large intestine is solid or semi-solid. Diverticula are of more consequence if the sacculation is on the inferior portion of the intestine, *i. e.*, on the side opposite to the mesentery, for this favors deposition and accumulation of the solid contents of the intestine in them. Diverticula have a small opening through which they communicate with the intestine and are more likely to result in a fatal termination than dilatations in which the entire intestine is dilated.

Intestinal diverticula may become harmful in various ways. Thus foreign bodies, nails, pieces of glass, etc., accumulate in them and may produce perforation and fatal peritonitis. Gravel and sand may collect in sufficient quantities in them to result in more extensive sacculation or establish inflammation. They may be a factor in the production of volvuli. Accumulated ingesta may undergo putrefaction and autointoxication result from absorption of the putrefactive products. Intestinal parasites find in them a favorable field for their activity.

NOTES ON THE BIER HYPERÆMIC TREATMENT.

By A. W. WHITEHOUSE, V. S. Laramie, Wyoming.

Case I.—Nail Prick. Black mare drove a 30-penny nail backwards and upwards from near point of frog for about three inches. She had to pull a load for about 10 miles after the accident. When seen there was considerable swelling up to middle of metacarpus. In conjunction with the regular treatment, I tried a three-inch nine-foot rubber bandage just below knee

drawn moderately tight, to be kept on from one-half to one hour three or four times daily. This caused such severe pain that the attempt had to be abandoned. The mare made a slow but good recovery by the ordinary treatment.

Case 2.—Infected Hock. This is an unsatisfactory case, and by no means a fair test of the treatment. A brown mare had been mixed up with a plough and sustained extensive contusions and abrasions on the metatarsus, but no wound penetrating the skin. She had been given a purgative and no other treatment, the whole hind leg swelling enormously. When I was called in the swelling was confined to the hock, which was very hot and tender. The owner was by no means enthusiastic about her, and though I know the bandage was applied several times I doubt if any part of the treatment was faithfully attended to. The mare went from bad to worse and was finally destroyed, post-mortem revealing a typical open joint, though the capsular ligament had not ruptured till the day before she was destroyed. However, such treatment as she got did not appear of any benefit whatever.

Case 3.—Navicular Disease. A dun roadster gelding, seven years old, was purchased in Denver last September and began to dot a little as soon as brought home, being worse on hard ground. I saw this horse in December, took him and used him myself for a week, and quite satisfied myself of the correctness of the diagnosis. He nearly always pointed when standing; the lameness almost disappeared when put to his speed, which was considerable. The heel was really half an inch narrower than its mate; there were no corns, and the leg was very clean. I did not consider a cocaine diagnosis necessary. About January 1, I put him on the Bier treatment. Night and morning the 3-inch 9-foot rubber bandage was applied from below the knee to above the fetlock and drawn fairly tight, reduced to about two-thirds of its breadth, being left on for three-quarters of an hour. On very cold days the treatment was not used for fear of freezing. By February 1 he had ceased to point the foot. In March the bandage was only applied once a day. He is now perfectly sound for ordinary town roadwork, but has not had, and by my advice will not have a really hard trip for another month. The heel is somewhat expanded, and I believe that this is a recovery. I have just begun on another case and will report later. I may add that in two cases of infection of fingers in myself I have used the rubber band and had very nice and rapid recoveries.

ANEURISM AND THROMBUS WITH RUPTURE OF THE LEFT INTERNAL ILIAC ARTERY IN A ZEBRA.

BY W. REID BLAIR, D. V. S., VETERINARIAN AND PATHOLOGIST, NEW YORK
ZOOLOGICAL PARK.

During the meeting of the New York State Veterinary Medical Society, held in the New York Zoological Park on September 25, 1907, many of the members present will doubtless recall seeing a zebra mare which had been suffering from an obscure affection of several months' standing.

For the previous four years this zebra mare delivered each year, without assistance, a fully matured foal. On March 27 she delivered a dead foal, which apparently had been carried the full gestation period. Soon afterward she began gradually to fail in health without presenting any acute or marked symptoms of disease. Notwithstanding a remarkably good appetite, she gradually declined, exhibiting emaciation and weakness. Atrophy was most prominent in the hind limbs. During the summer she was transferred to and allowed to range in a pasture of several acres where, besides grazing, she was fed daily with grain and hay. No improvement was noted in her condition, but it was noticed that, especially after slight exertion, there was a trembling of the hind limbs. This, however, would disappear after resting a little while.

After showing intermittent attacks of lameness in the hind limbs for several weeks, she was found dead in the pasture on October 10.

On post mortem examination the pelvic and abdominal cavities were found to contain a great amount of blood. The muscular and connective of the left leg was deeply infiltrated with blood, and the hemorrhage was traced to the internal iliac artery, which was found to contain a very large attached thrombus near its aortic bifurcation. The artery at this point was greatly dilated, exhibiting a large sacculated aneurism.

The blood vessel was markedly degenerated, and the thrombus filled the entire lumen of the vessel. The thrombus was stratified, and pale in color; the rupture of the artery

irregular and ragged in appearance. Besides the condition already noted, the uterus showed a chronic inflammation apparently of some months' standing.

The aneurism was not of parasitic origin. Sections of the various arteries showed extensive fibroid changes.

"REVIEW up to date and scientific."—[*Frank Hockman, D. V. S., M. D., Louisville, Ill.*]

THE LIVE STOCK JOURNAL, Chicago, in its issue of June 18th, gives space in its pages to the REVIEW editorial on "The Status of Veterinary Education," which appeared in our June number.

QUITE HOPELESS.—Mistress—Jane, I saw the milkman kiss you this morning. In the future I will take the milk in.

Jane—'Twouldn't be no use, mum. He's promised never to kiss anybody but me.—(*Illustrated Bits.*)

FINDING A HORSESHOE.—There is a man who has a very poor idea of the horseshoe as a bringer of good luck.

"I found one in the road some time ago," he remarked. "As a matter of fact, another old gentleman found it also about the same time. We both wanted it, and there was a tussle for it.

"I got the shoe, a black eye, a torn finger from a rusty nail in the shoe and a summons for assault and battery.

"It wasn't a very good start, but I thought I'd give it a fair trial. Of course in nailing the shoe up above the front door I managed to smash my thumb and fall from the stepladder.

"Then I sat down and waited for the luck to begin. That shoe seemed to be endowed with the power to attract trouble in every form.

"Duns, bailiffs, the landlord, measles and poverty were rarely out of the house, and my faith was shaken.

"Then one day, when the rate collector was standing on the top step, that shoe came down with a crash"——

"Ah!" interrupted the sympathizer. "Luck at last!"

"Not a bit of it," sighed the unlucky one. "It missed him by a foot."—(*London Answers.*)

ARMY VETERINARY DEPARTMENT.

STATUS OF THE ARMY VETERINARY BILL.

The bill "To increase the efficiency of the veterinary service of the army" is one of the numerous military measures which have not been finally acted upon by the first session of the present Congress and which will come before the second session which meets on December 7, 1908.

It will be well to remark at this time that this bill is getting old. It was on December 15, 1904, when the army veterinarians, having agreed on a draft for a bill, forwarded the same together with explanatory remarks through military channels, praying for legislation. After some delay the general staff of the army took up our document for consideration, and drafted an entirely new bill which materially changed our recommendations, eliminated the "grade" (rank) for which we had asked, and added some rather ironclad requirements for promotion to a "better-paid" position after ten years of service. This official bill was then transmitted by the Secretary of War to both houses of Congress on January 20, 1906, and introduced by Senator Warren and Representative Hull early in February, 1906.

The bill has twice been favorably acted upon by the Senate but never by the House. According to the *Army and Navy Register* of June 6, 1908, its status is now as follows:

Senate 654. To increase the efficiency of the Veterinary Service of the Army. Senate, February 22-29. Present status: House Military Committee.

House: 11790. To increase, etc. Text, January 11-21. House Military Committee.

There are forty military bills ahead of ours according to the published list, among them two or three that are commonly regarded as important bills, a category to which unfortunately our little bill does not belong.

The question before us is this: Shall we let the official bill, as passed by the Senate, go through the House at the second session, or shall we use the occasion of its consideration before the House Military Committee to introduce the changes that are clamored for by a majority of the army veterinarians. As previously mentioned in these pages, there has been a growing dis-

content with some of the features of the official bill, made stronger by its delay and repeated failures to pass, and there are a few extremists among us who would now outright kill it. Whether such steps would be wise, I for one seriously doubt, and while there is nobody enthusiastic over this bill, the conservatives among us want to let it go on. I personally have repeatedly spoken in its favor in order to offset and discourage any attempt to suppress it. The ground I take is this: We must not forget that a great deal of labor and effort has been applied to get this bill where it is; that it was the first veterinary bill ever officially considered and directly worked out by the War Department, showing appreciation of its necessity and good will in more than one respect; that it was and still is fostered by the representatives of the army in Congress, and finally that it is half passed.

All this would be more or less lost should we propose to the War Department an entirely new measure made up to suit ourselves in the way of rank and veterinary organization, fashioned after this or that foreign army. We all of us hope to see the day when such can be accomplished, but this day is not yet dawning. We constantly read and hear from our army colleagues reports to the effect that certain officers from a major-general down to the youngest lieutenant is in favor of giving us rank and a respectable veterinary corps. This is all very nice and true; there always have been and are now a limited number of officers who think that way, *but the majority do not*, and the fact remains that when these officers assume responsible places and are closeted together they vote against such propositions. No, aside from polite admission of our worth and frank acknowledgment of our usefulness in the army, we are not yet wanted in a position of authority from reasons that it would be impolite to explain.

As we stand, then, we could gain nothing by reaching out for something that is not attainable at this stage of our progress. Progress, however, we are making constantly, and we might try and should try to have corrected the clause in the official bill that would throw out of service those of us that were physically disabled in line of duty; we should try to get a first lieutenant's pay and allowances after *five* years of service as originally requested by us, and a captain's pay and allowances after ten years of service; or, what is still more desirable and perhaps more readily attainable, a first lieutenant's pay on entrance into

the army service, and a captain's pay and allowances after ten years of service. There is a precedent for this request in the pay of entering surgeons and chaplains, whose expenses of professional education are seldom greater than ours have been, if in many cases they have been as high. It is this point more than any other that I would wish our younger army colleagues to consider with a view to their future in the army career. It is a just and wise claim, and would confer on us more prestige than a limited rank. Yet we may also try to have the "grade" inserted as petitioned in our original bill, which will simplify the entire bill.

Finally, the army veterinary bill is not only getting old in years, but it is in danger of becoming post date in the light of recent progressive army legislation enacted or sure to come. Some provision for the establishment of a Remount Department has been enacted and more in this direction is to follow. The veterinary service of an army should be closely united with the remount division, yet no provision has been made in this direction, either in our veterinary bill or in the pending remount bill. The proposed employment of civilian veterinarians for the remount service must be discouraged, for it takes years of observation, natural aptitude and special study and hard, practical experience in garrison duty, manœuvres and actual war to know what requirements in health, conformation and disposition we must exact of remount horses for the cavalry and artillery. Purchasing officers, while enthusiastic horsemen, are often deficient in this knowledge and experience and they sorely need the advice of an experienced army veterinarian, thoroughly competent in this special branch of our professional work, yet they are often given civilian veterinarians as "assistants" who are strictly confined to a more formal examination for soundness. Here is an opportunity to wipe out one of our worst army practices from which we seem unable to get away, and which results in the great number of unfit and unserviceable horses that always have been and still are being forced upon us in the mounted service. It is our plain duty to enlighten our military authorities on this ill-understood army veterinary branch, certainly not from pretence or professional usurpation as some others want to see it, but from a clear understanding of our duty toward an ill-advised government that is entitled to our best services along a line long since practiced in the older armies more schooled in dire experience of war.

We earnestly ask our army veterinarians and all in civil life who take an interest in our development in the army, to think this over and then get to work. Our Fort Riley veterinarians will undoubtedly be willing to hear from all by letter, so that we may be prepared in time to properly put forth our just and right claims at the second session of this Congress.

OLOF SCHWARZKOPF.

WHAT WEIGHT SHOULD A HORSE CARRY?

We are often inclined to pity a small pony carrying a heavy man on his back, apparently quite disproportioned to the powers of the animal. But it is not always the biggest horse that has the most carrying and staying power. During the Egyptian War, Colonel Drury Lowe, in his march to seize Cairo, was obliged to discard the big British troop horses and mount his big men on the small Arab ponies, which proved quite equal to the work. Amongst human beings a great, tall, gaunt man will often succumb under a load which a little nuggety-built man will make light of. So it is with horses. A thick-set pony, with a bit of breeding, will carry weight and wear down a brute twice his weight that lacks quality; and a high-bred weed will, even when poor, often work to death a horse of substance. Nevertheless, other things being equal, size, of course, indicates strength, and, having this in view, an English Army Veterinary Surgeon, Major-General Smith, some time ago made exhaustive inquiries into the question, "What weight should a horse be asked to carry?" The method adopted was to ask an independent observer to estimate the horse's carrying capacity, test that in practice, and then weigh the horse; in this way the proportion which the estimated weight-carrying capacity bore to the body-weight was ascertained. Veterinary Surgeon Major-General Smith's system was applied to two groups of horses belonging to light and heavy cavalry, and the result was, as we might expect, broadly speaking, the heavier the horse the more it could carry. The bridge on which the horses were weighed was not sensitive within 28 lbs. It was found that 13 horses whose carrying capacity had been estimated at an average of 170 lbs. weighed each 952 lbs.; that 10 whose carrying capacity had been put at an average of 175 lbs. weighed each 980 lbs.; that 10 whose carrying power had been put at 178 lbs. (average) weighed each 1,036 lbs. Further calculations and allowances were made to determine the relationship of a body-weight to carrying power, in a military

sense—i. e., performing hard and continuous work—and it was found that, roughly speaking, $5\frac{3}{4}$ lbs. of body-weight were required to carry 1 lb. on the back during severe exertion.—(*Queensland Agricultural Journal*.)

IS MALLEIN AS RELIABLE A TEST FOR GLANDERS IN THE PHILIPPINES AS IT IS IN THE STATES?

CAMP STOTSENBURG, PAMP, P. I., May 25, 1908.

Having had ten years' experience with mallein as a diagnostic agent for glanders, in various parts of the United States, with few, if any, unsatisfactory results, naturally, mallein stood very high in my estimation.

I arrived at Camp Stotsenburg, P. I., with the 1st Cavalry Jan. 3, 1908, and soon had occasion to test, with mallein, all the horses of the 1st Cavalry and about 90 animals of the quartermaster's department, making in all about 900 horses and mules.

Following I am giving the record of 15 troop horses tested during the last of January, 1908:

No. of Animals	Average temperature before injection	TEMPERATURES THE DAY AFTER INJECTION			
		6 A. M.	8 A. M.	12 M.	4 P. M.
30	99	104.2	104.2	105.2	104.2
19	99.1	103	103	102.1	102
10	99	104.1	104	104.2	104.3
32	98.3	102.3	102.4	102	102
49	99	100.4	102.1	102.4	103
54	98.4	99.4	102.3	104	102.4
48	99.4	102.1	103	103	102
33	100	104	104	103.1	102
60	99.3	104	104.1	103.1	102
51	99.2	103.2	103.2	103	102
31	100	103.2	104	104	103.2
26	99	105	105.2	104.4	103.3
21	100.2	104	104	104.3	105.2
16	99.4	103.2	104	104.2	104.2
24	100	105	104.2	103.3	103.3

In getting the normal temperature before injecting, one temperature was taken from 3 to 5 o'clock p. m., the day before, and two on the day of injection at 7 to 11 o'clock a. m. Injections were made at 6 p. m. A few of these animals had local swellings, varying from 10 to 15 centimeters across and 2 in depth. The mallein used was furnished by the Bureau of Science, Manila, prepared at different times and kept in a refrigerator until used; 1 cc. was injected in each case. In no case was the mallein over six days old.

The above animals were retested thirty-five days after first injection with 2 cc. of mallein, with no reactions, except No. 10, which reacted about the same as at first.

These animals were in the best of condition during quarantine and no suspicious symptoms occurred, excepting the temperatures recorded and a few local swellings, which, out of about 900 animals tested, none resulted in an abscess, all subsiding in forty-eight hours. These animals have all been doing duty for two months since last injection and are in the best of condition, even No. 10. Not one of these animals have any inclination or enlargement of the submaxillary lymph glands.

Would the most zealous advocate of mallein as a curative agent claim that these horses were infected with glanders, and cured by the mallein? I think not. Or, will some claim that they are glanderous?

WALTER R. PICK,
Veterinarian 1st Cavalry.

* * *

PERSONAL ARMY NOTES.

By order of the Secretary of War, obtained through the Commissary General of the Army, Dr. D. Arthur Hughes, Inspector, Subsistence Department, U. S. Army, is to be sent to Washington in September, at the expense of the War Department, as official representative of the Subsistence Department at the International Congress on Tuberculosis more especially in Section VII., devoted to tuberculosis in animals and its relations to man.

Dr. Gerald Griffin, veterinarian 3rd Field Artillery, at present supervising veterinarian of the Quartermaster's Department in Havana, Cuba, has been detailed by the War Department to

represent the army at the coming annual meeting of the American Veterinary Medical Association at Philadelphia, Pa. Dr. Griffin is an old and tried army veterinarian and has inherited the gift of his Celtic race to say the right thing at the right time in language humorous or caustic, as the occasion may require. He will be an interesting visitor at the meeting.

Dr. Lusk, 2nd Cavalry, Fort Des Moines, Iowa, will enjoy a two months vacation, beginning with July 15, 1908.

NOT ENTIRELY.—Moe Rose—Do you think the automobile is replacing the horse? Joe Cose—Well, not entirely, anyway. I haven't found automobile in my bologna as yet.—(*Browning's Magazine.*)

ENCLOSED please find draft for \$3.00 for the REVIEW for coming year. Would not be without monthly visitor for I find it is a great help to me in my work.—(*Arthur L. Wood, D. V. M., Assistant State Veterinarian, Hampton, Ia.*)

VETERINARY EDUCATION IN EUROPE.—There appears to be a decided awakening in Great Britain and European countries as to the importance of veterinary science. There is, Professor Berry says, an important movement everywhere visible for raising the standard of veterinary education. In illustration of this he mentions that the Imperial Government has granted to the Dublin College £30,000, which is to be supplemented by an additional grant of £15,000. The Dick College at Edinburgh has been taken over by the Edinburgh Council and is being heavily financed from the public rates, and has received private bequests amounting to £15,000; the University of Liverpool has taken over an institute previously in Edinburgh, and is being largely assisted by municipal rates; and in London not less than £6,000 per annum is being spent on the veterinary college. That the standard of veterinary education is being considerably raised is shown, he says, by the significant fact that two such differently constituted universities as Edinburgh and Liverpool are about to establish university degrees in veterinary science. Professor Berry says our aim in the colonies should be not the reproduction of veterinary science of twenty years ago, but we should rather aim at what veterinary science was about to become in Great Britain.—(*The North-West Farmer-Transvaal Journal.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By PROF. A. LIAUTARD, M. D., V. M.

MESENTERIC ABSCESS DUE TO STREPTOCOCCIC INFECTION [C. H. H. Jolliffe, *Veterinary Captain*].—Record of a case similar to the one alluded to in our English Review of May last, which occurred in a black gelding, which was ill since February 3, 1908, until March 12, when he died, after having presented a series of symptoms indicating abdominal troubles, the true nature of which could not positively be established. A range of temperature varying from 99.8° to 104.4° F. while the entire duration of the disease; rising invariably with two exceptions only in the evening; a condition which is recognized in connection with any pyogenous process, was observed during the whole sickness. The pulse and respiration giving no indications. The abdominal pains were of no special characters, except until immediately at the time of death, no evidence of severe pain, either continuous or in paroxysms were observed. The mucous membranes remaining normal all throughout the disease. There were no rigors, nor sitting position resorted to by the animal. Toward the end of the disease rectal examination revealed a mass of some kind, which was supposed to be impacted ingesta or a calculus. But the whole was not sufficiently distinct to make the abscess, that it was, clearly discernible. Of course all the various treatments resorted to were of no avail. At the autopsy general acute peritonitis was found to be the immediate cause of death. The abdominal cavity contained large purulent effusion. There were spots of adhesion on the intestines. The mesenteric glands and the mesenteries bore evidences of widespread suppuration. There was an amorphous mass weighing approximately thirty pounds formed by a series of abscesses with thick walls and containing pus and necrotic tissues. There was an inguinal abscess. The microscopic examination of the pus proved the trouble to have been the result of streptococcic infection.—(*Veterinary Journal*.)

TRAUMATIC ABSCESS OF THE PAROTID GLAND [G. M. Walrod].—Pug has eaten nothing for four days and is all the time trying to swallow something. Nothing is found in his throat and yet this is sore on pressure. Perhaps he had swallowed a sharp bone some days before. He is placed on observation and a few days later has a swelling at the inferior part of the parotid region. It is an abscess, which is lanced and from which is extracted a common sewing needle with thread attached to it. Recovery was prompt.—(*Veterinary Journal*.)

AZOTURIA IN AN OLD HORSE [C. W. J. Haworth].—Bay gelding, twenty-seven years of age, takes azoturia. The attack is mild, and after three days the horse is apparently as well as ever with a treatment of Bicarbonate of Soda, Salol, Cannabis Indica and Nitrous Ether. After working one month longer he was found lying down, paralyzed, unable to rise, and being considered incurable, was killed.—(*Veterinary Journal*.)

PSEUDO-LUXATION OF THE PATELLA IN THE HORSE AND TRUE LUXATION IN A DOG [C. H. Case].—These are the records of: One case of pseudo dislocation occurring in a horse a number of times, relieved and finally cured with the treatment preconized by Prof. Williams, the whip. And also that of a true luxation in a dog in which the same result was obtained by reduction of the patella and repeated applications of tincture of iodine. The author makes the following comparison between the two cases:

1. The dislocation in the dog always occurred during violent exercise, while in the horse the so-called dislocation always occurred while the animal was standing.

2. The true dislocation in the dog caused unmistakable evidence of pain as soon as the accident occurred, whereas in the horse, so long as the patient was allowed to stand still no evidence of pain was apparent.

3. The dislocation in the dog was evident to vision and to palpation; in the horse no displacement was recognizable.

4. In the true dislocation of dog the limb is carried forward beneath the body, in the horse it is extended backward when the animal as forced to move.

5. Sudden forced movements of the horse overcame the difficulty; sudden forced movements of the dog induced it.—(*Veterinary Journal*.)

EFFECTS OF LIGHTNING STROKE [*A. P. Burgon, M. R. C. V. S.*].—A fold of fifty sheep was struck by lightning and all but one killed instantaneously. The one that escaped managed to walk about seventy yards, then fell down and succumbed. When seen the next day, the carcasses were markedly tympanitic, and most of them were discharging from the nose a frothy mucus, sometimes tinged with blood. The wool was torn off the skin in various places and then there were black spots. Post mortem made on one, which seemed to be the most affected; no lesions could be found under the parts of the skin which were badly singed, the blood was not coagulated and the muscles not rigid.—(*Veterinary Record.*)

INTRACHEAL INJECTIONS OF IODINE FOR JOINT-ILL IN FOALS [*W. Lotham, M. R. C. V. S.*].—The author has obtained many good results with this treatment applied in foals, even when the condition of the animal was very bad. He used a solution of $2\frac{1}{2}$ grains of Iodine with 5 of Pot. Iodide to the ounce of water, and injected 3 drachms of that solution in the trachea; repeating the operation every day for two or three days and following every other day. After the injection the animal is kept with the head slightly elevated for ten minutes, to prevent any of the solution being coughed up into the larynx. Usually five or six doses are required.—(*Veterinary Record.*)

RUPTURED STOMACH DUE TO TUMORS FORMED BY SPIROPTERA MEGASTOMA [*W. Lotham, M. R. C. V. S.*].—The subject was a bay mare, which first showed colicky pains, pawing, looking at her flanks, constantly lying down, getting into a sitting posture followed by a period of ease. This condition lasted for a week about, and then she was taken only after every meal. She received a dose of linseed oil and for ten days seemed to be without pain. They then return more violent, and although they are somewhat relieved by morphine, they did not entirely go away. She became tympanitic and passed no dung. Tapped and passage of the probang gave no relief. The symptoms then became very alarming, hurried pulse, quick breathing, cold sweat, haggard expression, throwing of frothy, yellow custard-colored material from the nostrils, all those indicated of an early fatal termination. It happened in a few minutes. At the post mortem, the peritoneal cavity was found containing dirty fluid and inješta, there was a rupture of the stomach with a six-inch rent. Two tumors were found in the stomach. One near the pyloric orifice

as big as an orange and the other in the cardiac region as large as a hen's egg. Each had five or six small perforations in the summit, around which numbers of *Spiroptera megastoma* were seen moving. On incising the tumors yellow pus escaped, and this was found swarming with worms.

The history of the case clearly points to the fact that the repeated attacks of colic after each meal were due to the obstruction to the passage of food in the pyloric region.—(*Veterinary Record*.)

THE OCCURRENCE OF THE SPIROPTERA MEGASTOMA AND *S. MICROSTOMA* IN THE STOMACH OF HORSES [*E. E. Martin, Major, A. V. C.*].—After a few remarks on the life-history of these parasites, the author relates the results he has obtained with four animals, abandoned because of unfitness for work, and which he submitted to different treatment. He destroyed one to satisfy himself that he was suffering with worms, and at the post mortem he found the *S. Microstoma* in very large quantities. To the second pony he gave an ounce and half of Oil of turpentine in a pint of Linseed oil. Although three doses of this mixture was given, at the post mortem the *Microstomas* were found in quantities apparently unaffected by the treatment given. To the third horse a powder made of 4 drachms of Areca nut, 2 of Sulphate of iron, 20 grains of Arsenic and 40 grains of Santonin was given twice a day for three days. The autopsy showed the *S. Microstoma* in quantities and very lively. Finally, to the fourth horse six doses of Sulphate of copper of 4 drachms each were given, the morning dose being dissolved in water and the evening dose as powder in the food. The morning after he had the last dose the probang was introduced and one ounce of Lysol in a pint of water introduced into the stomach. An hour after he was destroyed. Post mortem showed that the stomach had been irritated by the dose of Lysol. Careful examination only disclosed two or three *Microstomas* dead in the stomach. In the cæcum, however, the worms were innumerable. The conclusions are:

1. Sulphate of copper in large doses has no effect on the parasite.

2. Lysol in very strong solution, stronger than the medicinal, has the power of expelling the worms from the stomach, though not necessarily killing them.—(*Veterinary Record*.)

FRENCH REVIEW.

By PROF. A. LIAUTARD, M. D., V. M.

ENORMOUS ABDOMINAL TUMOR IN A SLUT; REMOVAL; DEATH [*Mr. Schrader*].—A slut aged between six and seven years has been in heat, but not covered. It was noticed, however, that her abdomen was getting larger quite rapidly. She was brought to the author, who found her with an abdomen evenly distended, not painful, without fluctuation or tympanitis, but presenting a zone of dullness on percussion all over. The diagnosis was doubtful and reserved. A short time later, after another examination and when the condition had become more serious, an operation was suggested, and after preparation of the patient, asepsy and mixed anesthesia of Chloride of ethil and Chloroform, the abdomen was opened from the xyphoid cartilage to the umbilicus. The hand introduced detected a regularly ovoid tumor, free except toward the pelvic cavity, where it was held by peduncle. To bring it out of the abdominal cavity the incision had to be extended as far as the pubis. Ligatures were applied on the broad ligaments, and the growth being loose, was removed. It was a large fibroma, as big as ostrich's egg, weighed fourteen pounds. The dog died the second day from nervous shock.—(*Rev. de Pathol. Comparée.*)

TUBERCULOSIS OF THE SPINAL CORD IN A HEIFER [*Mr. E. Barrot*].—One year old heifer is found one morning unable to get up. Since a week she has had a peculiar gait. Efforts to make her get up are useless, the hind quarters will not move. The animal has had spells of coughing. She is in fair condition, but her skin is dry and adherent to the tissues underneath. She is sent to the slaughter house. Lesions: The lungs have a few tubercles. The pleurae are covered with them. Only a few on the liver. The vertebral column is open in its whole length and microscopically seems normal. No vertebra shows signs of tuberculosis. The spinal cord, opposite one of the last dorsal vertebra, shows a grey yellowish oval mass of tuberculous nature. Nearby there are several spots of acute tuberculosis. Section of the cord reveals that the organ is involved in its entire thickness.—(*Rev. Veter.*)

PRETHORACIC LYMPHADENOMA IN A MARE [*Mr. Adrian*].—Seven years old mare in fair condition has several spells of coughing, which are supposed to be due to a simple laryngo-bronchic irritation. After a few days there appears between the forelegs an œdematous tumor. This increases, spreads toward the base of the neck, pushes the legs apart. There is also a zone of dullness in the lower parts of the chest and the prepectoral lymphatic glands are swollen and painful. Invading neoplasm is suspected in the chest and in a short time the animal dies with asphyxia. At the autopsy the subcutaneous tissue of the chest is found the seat of a large œdema. The superior brachial, prepectoral, bronchial and mediastinal glands are largely hypertrophied and altogether form a large tumor surrounding all the vascular and nervous organs of the entrance of the chest, as well as the trachea and the œsophagus. There were some 5 or 6 litres of fluid in the pleural cavities. The histological examination showed that it was a lymphadenoma containing numerous microbes (streptococci and staphylococci).—(*Soc. des Scien. Veter. de Lyon.*)

FRACTURE OF THE CRANIUM IN A HORSE [*Mr. G. Parant*].—While being exercised, a thoroughbred gelding nine years of age gets frightened by a piece of paper on the road. The rider whips him, the horse rears, falls backwards and remains dead on the ground. He lays on the right side and bleeds at the nose and from the right ear. About one litre of blood has escaped. Post mortem. Right lung congested with passive congestion. Both lungs are the seat of numerous parasitic tubercles. Nothing in the abdomen. Toward the head, the subcutaneous tissues are the seat of numerous hemorrhagic spots. The tuberous portion of the right temporal is fractured horizontally on a level with the auditory canal. The posterior sphenoid is also fractured right across. The meninges and the brain are congested. The circle of Willis is covered with a clot of blood from one of the cerebral arteries. Nothing on the cerebellum or in the ventricles.—(*Repertoire of Laquer.*)

INTOXICATION WITH COCAINE IN A CAT [*Mr. G. Parant*].—Two months' kitten has hypertrophy of the caruncula lachrymalis. Removal is indicated. Anesthesia with cocaine is resorted to. Five or six drops of a fresh 4 per cent. solution are pushed under the eyelid. The growth is removed. At the same time the cat is taken with violent convulsions, falls on the floor, his head

thrown backwards, his legs stiff and jerking with convulsions. Sight is entirely gone and the pupils are enormously dilated. This condition lasted fifteen minutes. Then gradually the animal could rise, stood trembling. Sight did not return for three hours. It was only after a few days that the animal was himself again. The author, sure of the quality of the preparation he used, asks if cats have a special sensitiveness to cocaine which could explain such manifestations.—(*Repertoire of Laquer.*)

SILICATE OF POTASH OCCLUDENT DRESSING [*L. Magnin*].—Used by the author for several years, this dressing is perfectly adapted for regions where the skin is rather adherent, such as the forehead, withers, back, etc., and also some regions of the extremities, where it is difficult to have rolls of bandages hold in place.

If the wound is not aseptic, clean it thoroughly with an antiseptic solution, then spray it with pure oxygenated water (10 or 12). Close the wound with silk or pins. Spray again with oxygenated water and a few minutes after, when the skin is well dried, with iodoformed ether. Then take a thin layer of hydrophile wadding, with thin irregular thready edges, lay it over the wound, leaving the edges extend quite freely beyond the surface of the wound, then let drop on its surface, in small quantity, Silicate of potash, which is spread with a spatula from the centre of the wound to its periphery. If the animal had been cast, it is necessary to wait until the dressing is dry before the animal is allowed to rise. If the wound has been soiled much, and a perforated drain is indicated, the application of the dressing is the same, having one end of the drain resting in the depth of the wound and the other hanging in the most dependent part of the solution of continuity. When properly applied, this dressing is very solid.—(*Rev. Gener. de Med. Veter.*)

SMALL SLUT SWALLOWS A BONE AND DIES FROM IT [*Mr. Barrat*].—The little thing presented very serious symptoms; dyspneic respiration, tongue cyanotic and hanging from the mouth, abundant salivation, inspiration followed with marked whistling sound. Any movement is penible and almost impossible. Has she rabies? The owner thinks she has swallowed a bone or been stung by a bee. While trying to raise her for better examination, she suddenly expires. At the post mortem a large clot of blood was found in the pharyngeal cavity, and on its walls an opening made by a sharp stylet-shape bone which is

perforating the carotid and jugular. Death was due to pressure made upon the trachea by the clot of blood and was hastened by the hemorrhage from the two blood vessels injured.—(*Rev. Veterin.*)

RECTO-COLIC ADHESION—LACERATION FOLLOWED BY DEATH [*Mr. G. Savary*].—The general way of acting of this thoroughbred is lacking, and he is unwilling to do his regular work. He has been so some time, and is supposed to be weak in his loins or suffering from his hocks. He is placed in observation. He has all the appearances of health, normal temperature, good appetite. However, in exploring the right hypochondriac region, he seems to show pains. Rectal examination is made after he has received an enema to clean it out. The arm is scarcely introduced, than at the entrance of the pelvis, on the floor of that cavity, a depression is felt, with soft bands running in different directions and giving the sensation of an ulceration. The hand is withdrawn and found covered with blood. From this day the animal had abdominal pains, and abdominal complications set in which, notwithstanding opiate treatment, was followed with peritonitis, which killed the horse on the seventh day. At the autopsy lesions of generalized peritonitis were found. The digestive organs were almost empty. The rectum is by its entire lower surface adherent to the superior and convex face of the pelvic curvature of the large colon. The rectal mucous membrane is destroyed by a large cicatricial ulceration, brownish, thick and lardaceous, having irregular edges easily torn. This is adherent more or less with the corresponding surface of the colon by fibrinous yellowish bands. This adhesion, which goes back to some time, was possibly lacerated at the time of the last rectal exploration.—(*Rev. Gener. de Medec. Veter.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

PERHYDRASED MILK.—At the meeting of the Medical Society, held at Marburg, Drs. Römer and Musch reported that they had succeeded in producing a milk essentially unchanged in its raw natural properties and which was free of tubercle bacilli. The method was simply this, that by the addition of a

small quantity of hydrogen peroxide the milk is freed of living organisms. But this agent lends to the milk a slightly irritating taste, consequently it must be removed, and this is accomplished by the addition of from 2 to 4 drops per litre of the ferment expressed from a bloodless beef liver. This food, known as perhydrated milk, exhibits no essential difference from raw milk. Its superiority consists therein that it can be stored away for some time (seven weeks) without deteriorating. Further investigations have proven that when tubercle bacilli are mixed with the milk, they perish. As a result of this perhydrated procedure, albuminous and coagulating ferments produce no changes in it. In about half an hour after the addition of the ferment the hydrogen peroxide disappears completely from the milk. It is neither perceptible by taste nor by chemical reagents. The price is increased 1 cent per litre. One disadvantage that the milk possesses, it acquires a bitter taste when exposed to sunlight. It must, therefore, be stored in darkness.—(*Deutsche Landwirtschaftl. Presse*, 33 Vol., No. 275.)

CONTRIBUTION TO THE STUDY OF THE ORIGIN OF ANTHRACOSIS PULMONUM [*Dr. Luttsschwager*].—In the present dissertation the author arrives at the following conclusions: That the circulation of the blood plays an important part in the distribution of pigments in the body. In several cases pigment was found in the wall of a blood vessel without macroscopical or microscopical pathological changes being discernible. The transition of pigment into the blood vessels must, therefore, be comparatively easy. The lymph channels cannot be considered as an exclusive medium, because in several cases pigmentation of the liver, spleen and kidneys was far more extensive than that of the lymph glands. However, the lymph channels are also considered. From this it follows that in cases where the coloring matter was taken up from the abdominal cavity—after feeding or intraperitoneal injections of Indian ink, the metastatic formations were especially abundant, while here a marked absorption of the ink through the lymph vessels of the abdominal cavity took place. Consequently it must be assumed that the coloring matter at the point of injection in the body is first taken up by the lymph spaces and lymph vessels, and then carried into the blood circulation without being entirely retained in the lymph vessels. As a rule it is further distributed throughout the body by means of the circulating blood.—(*Deutsche Tier. Wochenschrift*, No. 1 and 2, 1908.)

RECTAL EXPLORATION [*Dr. Jakob, München*].—The examination per rectum is becoming more important as an auxiliary method for diagnostic purposes than formerly. There is sufficient data at hand to emphasize its practicability. Jakob refers to five cases which came under his observation and which he describes briefly as follows: First cow, suspected of being tubercular. Manual exploration: At the pelvic inlet and slightly anterior to it there was felt, on both sides, nodular growths varying in size, firm, partly smooth, partly uneven, non-painful, and apparently attached to the peritoneum. Tuberculin test, positive. Diagnosis, tubercular peritonitis. Autopsy verified the result of manual exploration.

No. 2. Cow, emaciated without any apparent cause. Exploration, about 50 c.m. distant from the rectum, on the right side, a hard, knotty, tumor-like mass was felt, extending from the lumbar to the right hypochondriac region. Diagnosis, post-mortem, *adenoma renalis dextra*.

No. 3. Mare, poor appetite. Examination per rectum revealed in the vicinity of the uterus a spherical, nodular tumor of an indefinite size, very painful on manipulation; when pressure was applied on its surface a reddish-yellow urine escaped in drops, causing intense pain. Diagnosis, *carcinoma vesical urinæ*.

No. 4. Cow, affected with nymphomaniâ. Exploration revealed two floating tumors about 40 c.m. distant from the rectum in the region of the pelvic inlet superiorly and in a line with the two posterior lumbar vertebræ. Tuberculin test, negative. Diagnosis, post-mortem, *adeno-carcinoma ovarii*.

No. 5. An emaciated cow with vaginal catarrh. Exploration per rectum. About 30 c.m. distant from the rectum, in the median line superiorly to the pelvic inlet and toward the post-lumbar vertebræ, a large, solid, floating tumor was felt with apparently two horny appendages (uterus) and to which was attached a hard, oval, nodular mass. Tuberculin inoculation, positive. Diagnosis, tuberculosis *uteri et ovarii*. Post-mortem examination verified the diagnosis.—(*Wochenschrift für Tier und Viehzucht*, 1907, No. 20.)

IODIPIN IN THE TREATMENT OF ADVANCED PNEUMONIA OF THE HORSE [*Dr. Cornelius-Dermbach*].—In a case of advanced pneumonia the author prescribed this much-lauded preparation. As the result is perhaps of interest to many practitioners he describes this particular case as follows: On August 9th he was

called to see a horse which had suffered from dispnœa and was extremely emaciated, although, according to the owner, the animal had a good appetite. C. diagnosed the case as an extensive pneumonia (broncho-pneumonia), and which, according to the history and clinical evidence, was of at least 14 days' duration. Treatment consisted of steamed turpentine inhalations, Priesznitz packs and embrocations of spirits of mustard. On the 15th, 20th and 24th of August, respectively, he made careful examinations of the patient, but could find no improvement; consequently he experimented with Iodipin. The patient was given on the 2d of September, 75 grams of a 25 per cent. Iodipin preparation (that used principally in veterinary practice), subcutaneously. This treatment being repeated on the 7th inst., the external applications being discarded. On September 11 indications presented a recovery as the respirations were reduced from 42 to 18 per minute. The cyanotic color of the conjunctiva disappeared, the coat became smooth and glistening. During a violent attack of coughing an abundant slimy discharge escaped through the nostrils. The horse received once again a subcutaneous injection of 50 grams of Iodipin and the owner was instructed to give the animal gentle exercise daily in the open. On September 18 complete recovery was visible—respirations 14 per minute, no râles were audible on auscultating the lungs. The horse was now put to light work, and on a ration of 18 pounds of oats daily. On October 2 the animal was in good condition and well nourished. An examination for broken wind proved negative. Cornelius was convinced that the horse would have died or at least suffered permanently in wind had not the Iodipin treatment been prescribed.—(*Berliner Tierärztl. Wochenschrift*, No. 16, 1908.)

SUGAR AND FRUIT FOR HORSES.—Grain is not the only food on which the horse thrives. In Egypt the khedive's best mares are fed largely on currants, and these fruit-fed animals are noted for their endurance and speed. Figs, during the fig harvest, form the food of the horses of Smyrna. They turn to it from oats or hay. The green tops of the sugar cane are fed to the horses of the West Indies and for long weeks in many parts of Canada windfall apples form the horse's only food. In Tasmania peaches and in Arabia dates take the place of hay and oats, corn and bran.—(*New Orleans Times-Democrat*.)

CANADIAN NOTES.

Occasional rumors of rabies are heard in Saskatchewan this year, although no thoroughly authenticated cases have so far been noted.

* * *

The campaign against glanders is being steadily and unflinchingly maintained, public sentiment growing daily more in favor of the mallein test administered by Health of Animal inspectors; many farmers asking for their horses to be tested.

* * *

The members of the Health of Animals Branch in Alberta and Saskatchewan, working under Dr. George Hilton for the past year, recently presented that gentleman with a beautifully engraved gold watch and chain and locket, as an expression of their esteem.

* * *

Dr. Simon F. Tolmie, Chief Inspector for British Columbia, of the Health of Animals Branch, is also representative for the Live Stock Division in that province. The portly doctor is well-known as a judge of live stock, especially of standard breeds and dairy breeds of cattle. His name was recently mentioned for the position of Secretary of Agriculture, for his native province. It is hoped that he will remain in the ranks of the profession.

* * *

Dr. R. A. McLoughry, Moosomin, in addition to keeping an eye on the health of live stock in his locality, keeps the horse breeding interests of his district well to the fore, maintaining standard bred and Hackney stallions at the stud. The increasing

number of good horses and cattle aid in making more work for the veterinary practitioners of the West. The past season, however, owing to the financial stringency, was an off year for collections.

* * *

A new policy has been enunciated by the Veterinary Director-General in dealing with mange. Compulsory dipping of all herds within the mange area is not insisted upon, but all herds containing diseased animals, or in contact with diseased animals, are quarantined, and dipped twice under official supervision in a dip made according to the official formula (lime and sulphur). The oil treatment has not proved entirely satisfactory so is not allowed this season for the treatment of mangy stock.

* * *

In the two new provinces of Alberta and Saskatchewan, reorganization of the work of the Health of Animals Branch, Dominion Department of Agriculture, has taken place. Dr. George Hilton, chief assistant to the Veterinary Director General, having returned to the capital, where he is at present Acting Veterinary Director-General, during Dr. Rutherford's absence at Rome, attending the Agricultural Congress. J. C. Hargrave, D.V.S. (McGill), and A. G. Hopkins, B.S.A. (Iowa), M.D.V. (McK.), have been given charge respectively of the provinces of Alberta and Saskatchewan, with headquarters at Medicine Hat and Regina.

* * *

The following veterinarians in Alberta are engaged administering the Animal Contagious Diseases Act, under the supervision of Dr. J. G. Rutherford, Veterinary Director-General, through Chief Inspector J. C. Hargrave, Robert Riddell, V.S., A. M. McKay, V.S., and C. McVeigh, V.S., Calgary; M. V. Gallivan, V.S., Lethbridge; V. V. Christie, V.S., Kimball; D. Warnock, M.R.C.V.S., Pincher Creek; W. T. Patton, V.S., Coutts; J. D. Paxton, V.S., Edmonton; R. C. Nyblett, V.S., Medicine Hat; A. Watson, V.S., Assistant Pathologist, Quarantine Station, Lethbridge; G. C. Pinhorn, V.S., Pendant d'Oreille; A. Busselle, V.S., Macleod; T. LeClaire, V.S., High River; R. C.

Brewster, V.S., Claesholm, are on the temporary staff during stock inspection. At present, owing to there being only one abattoir (packing house), that of Pat Burns, carrying on an export or interprovincial trade in Alberta, the work under the meat and canned goods act is directed from Ottawa, two veterinary inspectors being employed.

* * *

The Saskatchewan veterinarians have been less successful than their Alberta and Manitoba brethren in getting their bill through the Legislature, unfortunately the bill was not presented until the late hours of the session and on account of amendments became pigeonholed and missed the third reading. The amended bill will, it is understood, provide for veterinary education being placed under the control of the provincial university, as also the licensing of practitioners. While there is practically no opposition to the bill, the farmer members feel that already too much power has been conferred on the legal and medical professions, and will not confer in future such unlimited powers. At the present time there is on the statutes of Saskatchewan a bill preventing others than graduates of three-year schools, approved by the A.V.M.A., being allowed to practice in the province. With regard to the provision in the bill permitting the establishment of a veterinary college, the feeling of those members really interested in the welfare of the profession is, that one first-class English-speaking veterinary college is ample to meet Canadian requirements for years to come.

THE habit of looking at the best side of every event is worth more than a thousand a year.—(*Johnson.*)

WHAT HE WAS.—Senator Gilchrist, discussing in Albany his insurance bill, said of speculation:

“Speculative features, uncertainties, ought to be removed from our life as much as possible.

“When I think of speculation, I think of a man I know.

“This man, a conservative, suddenly took to stock gambling. At the end of a flurry I met him one afternoon and asked:

“Well, were you a bull or a bear to-day?”

“‘Neither,’ he answered, giving me a sour smile. ‘I was an ass.’”—(*Washington Star.*)

LEGISLATION AT ALBANY.

Explanation.—Matter in *italics* is new ; matter in brackets [] is old law to be omitted.

AN ACT to amend the agricultural law, in relation to the diseases of domestic animals. and making an appropriation therefor.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. A new section is hereby added to the agricultural law, to be known and designated as section sixty-three-a and to read as follows :

§ 63a. Care of diseased animals; experiments.—If after examination an animal is, in the judgment of the person making the examination, suffering from tuberculosis, such animal shall be slaughtered under the provisions of this article, or, if the commissioner deems that a due regard for the public health warrants it, he may enter into a written agreement with the owner, subject to such conditions as the commissioner of agriculture may prescribe, for the separation and quarantine of such diseased animal or animals. Subject to the regulations of the department of agriculture, such diseased animal or animals may continue to be used for breeding purposes and its or their milk, after pasteurization at one hundred and eighty-five degrees Fahrenheit, may be used for the manufacture of butter or cheese or for sale. The young of any such diseased animal or animals shall, immediately after birth, be separated from their mothers, but may be fed the milk drawn from such affected animal or animals so separated and quarantined after such milk has been pasteurized as herein provided. The owner of a herd of cattle, within the state, may apply to the commissioner of agriculture for examination of his herd by the tuberculin test ; said application to be in writing upon a blank form provided by the commissioner of agriculture and to include an agreement on the part of the owner or owners of the herd to improve faulty sanitary conditions ; to disinfect his premises, should diseased cattle be found, and to follow instructions of the commissioner of agriculture designed to prevent the reinfection of the herd and to suppress the disease or prevent the

spread thereof. The commissioner of agriculture shall, as soon as practicable, cause such cattle to be examined accordingly, subject to the provisions of the agricultural law. When the commissioner deems that the conditions warrant it he may make and issue to such owner a certificate that upon such examination such herd was found free from tuberculosis or that the owner has complied with the provisions of this section by causing all affected animals to be separated from the herd and quarantined as provided herein subject to the regulations of the department of agriculture. The commissioner of agriculture may determine the place of slaughter of an animal to be killed under the provisions of the agricultural law. The commissioner may experiment or cause such experiments to be made or performed as he may deem necessary to ascertain or determine the best methods or means for the control, suppression or eradication of communicable or infectious disease or diseases affecting domestic animals. No person shall sell any animal known to have a communicable or infectious disease except for immediate slaughter unless such sale be made under a written contract signed by both parties specifying the disease with which such animal is infected, a copy of which shall be filed in the office of the Commissioner of agriculture. No person shall knowingly inject into any bovine animal as and for tuberculin any substance which is not tuberculin.

§ 2. Section sixty-seven of such chapter, as amended by chapter three hundred and twenty-one of the laws of nineteen hundred and one, and chapter two hundred and fifty-three of the laws of nineteen hundred and four, is hereby amended to read as follows:

§ 67. *Bureau of veterinary service; chief veterinarian; appraisers [of condemned animals].—There is hereby established in the department of agriculture a bureau of veterinary service. The bureau shall be in charge of a chief veterinarian, who shall be an experienced veterinarian appointed by the commissioner of agriculture. He shall receive an annual salary of three thousand dollars and all necessary traveling and other expenses incurred in the performance of his duties. Such chief veterinarian or other veterinarians employed by the commissioner shall have all the powers of an appraiser of condemned animals under this article. The chief veterinarian shall, under the direction of the commissioner of agriculture, have general charge of the enforcement of the provisions of this article, and shall collect and disseminate through farmers' institutes or otherwise, as the commissioner may direct, information and statistics in relation to the diseases of*

domestic animals, the proper care and sanitation of stables and other buildings used for the stabling of farm animals for the purpose of preventing the existence and spread of infectious and contagious diseases, the methods of feeding, the methods of improving the breed or milking qualities of cattle, and such other matters as the commissioner may direct. All veterinarians in the state shall immediately report to the commissioner of agriculture the existence among animals of any infectious or communicable disease coming to their knowledge. The report shall be made in writing and shall include a description of the diseased animal or animals, the name and address of the owner or person in charge of the animal, if known, and a statement as to the location of the animal. No person shall conceal or attempt to conceal any animal suffering from an infectious or communicable disease so that the same shall not come to the knowledge of the commissioner of agriculture. The commissioner of agriculture may appoint and at pleasure remove two confidential agents at salaries not to exceed eighteen hundred dollars, to be fixed by the commissioner, to assist in carrying out the provisions of this statute. [The commissioner of agriculture] He may appoint and at pleasure remove one state appraiser of condemned animals, [The person so appointed shall be] *who shall be* a person of experience and well acquainted with the value of farm animals [.]; and [He] shall receive an annual salary of fifteen hundred dollars, and all necessary traveling and other expenses incurred in the performance of his duties. The commissioner of agriculture may [also appoint] *employ* from time to time such additional appraisers of condemned animals as the work of his department may necessitate, [such appraisers] *who* shall receive [a] compensation *at the rate* of five dollars per diem and all traveling and other expenses necessarily incurred while engaged in the performance of their duties.

§ 3. Section sixty-eight of such chapter, as amended by chapter three hundred and twenty-one of the laws of nineteen hundred and one, is hereby amended to read as follows:

§ 68. Appraisal of diseased animals.—[One of the state appraisers of condemned animals shall be present at the examination of all diseased animals when such examination is conducted under this act, for the purpose of determining whether such animal should be slaughtered. Such] *An* appraiser shall determine the value of each animal directed to be slaughtered. Such value shall be the market value of such animals at the time of making [such

examination as though the animals were not diseased] *the appraisal*, but the appraisal value of each [head of cattle] *animal* shall not exceed the sum of [sixty] *seventy-five* dollars[, if a thoroughbred, and forty dollars if a grade]. If the value of the condemned animals determined by the appraiser is not satisfactory to the owner of such animals, the value shall be determined by [the] arbitrators, one to be appointed by the state appraiser and one by the owner of the animals. If such arbitrators are not able to agree as to the value of the animals, a third arbitrator shall be appointed by them. The value determined by such arbitrators *shall not exceed the limits established by this act and, after approval by the commissioner of agriculture*, shall be final. [The costs and expenses of the proceedings before the arbitrators shall be paid by the owner of the animals.] *The arbitrators selected by the owner of the animals shall be paid by the said owner, the other arbitrator or arbitrators shall be paid by the state at a rate of compensation not to exceed five dollars per day and necessary expenses.* . [No cattle claimed to be a thoroughbred shall be appraised as such unless the owner thereof shall furnish to the state appraiser a duly executed certificate of registry.] Such appraiser of condemned animals and the arbitrators appointed under this section may administer oaths to and examine witnesses.

§ 4. Section seventy-a of such chapter, as inserted by chapter three hundred and twenty-one of the laws of nineteen hundred and one, and amended by chapter one hundred and sixty-seven of the laws of nineteen hundred and five, is hereby amended to read as follows:

§ 70-a. Compensation to owners of animals destroyed.—The actual appraised value, [not to exceed forty dollars] at the time they are killed of all animals slaughtered under the provisions of this article, which shall be found upon a post-mortem examination not to have had the disease for which they were slaughtered, unless the same were killed on account of the violation of quarantine regulations, shall be paid to the owners of such animals. If such animals are found upon post-mortem examination to have been suffering from [the disease of] tuberculosis, then they shall be paid for in the manner following, to wit: If an animal [had] *has* localized tuberculosis, the owner thereof shall be paid [sixty] *eighty* per centum of the appraised value. If the animal has [been suffering with] generalized tuberculosis, the owner thereof shall be paid therefor [forty] *fifty* per centum of the appraised

value, but no animal slaughtered under the provisions of this article shall be paid for as herein provided unless the said animal shall have been within the state for a period of at least [one year] *six months*. *If the meat of the slaughtered animal shall be passed for use as food, under official regulations, the commissioner of agriculture is hereby authorized to sell the same and the proceeds from the sale of the meat, hide and other marketable parts of the said animal shall be paid into the state treasury. For each and every day the owner or custodian of the animals condemned is obliged to keep them, in excess of seven days from the date of the condemnation, he shall be allowed and paid the sum of twenty-five cents per day per head.* The certificate of appraisal, and the statement of the result of the post-mortem examination, shall be presented by the owner or his legal representatives or assigns to the commissioner of agriculture. The commissioner of agriculture shall issue his order for the amount due as shown by such certificate and statement, *after he has found them to be correct*, which shall be paid by the state treasurer on the warrant of the comptroller out of moneys appropriated therefor. [If the owner of the cattle is dissatisfied with the appraisal he may take his claim to the court of claims, which court shall have exclusive jurisdiction to hear, audit and determine all claims which shall arise under the provisions of this article for compensation for animals slaughtered and to allow thereon such sums as should be paid by the state.] No compensation shall be made to any person who has wilfully concealed the existence of disease among his animals or upon his premises, or who in any way by act, or by wilful neglect has contributed to spread the disease sought to be suppressed or prevented, nor for any animal which upon a post-mortem examination is found to have the disease on account of which it was slaughtered or any dangerously contagious or infectious disease that would warrant the destruction of such animal, except as herein provided.

§ 5. The sum of two hundred thousand dollars is hereby appropriated out of any money in the treasury not otherwise appropriated for the purpose of article four of this statute.

§ 6. This act shall take effect immediately.

NOTE.—The appropriation of \$200,000 was cut down to \$70,000, which, added to the \$75,000 Dept. had, makes \$145,000.

POLO, as usual, this season is immensely popular at many fashionable resorts.

CORRESPONDENCE.

THE NEW SCHOOL REPLIES.

COLLEGE OF VETERINARY MEDICINE, 2113-15 FOURTEENTH STREET, N. W.

The George Washington University, Washington, D. C.

June 13, 1908.

Office of the Secretary.

Editors American Veterinary Review, New York City:

DEAR SIRs—The correspondence in your last issue relative to the new Veterinary School in connection with George Washington University, which is to be established in Washington, D. C., does this young school a great injustice. I trust you will give this letter the same prominence you favored Dr. French's letter in your last issue.

The facts are these:

The correspondence between Dr. D. E. Buckingham and Dr. H. H. Newcomb was shown to the newly organized Veterinary Faculty of the George Washington University and was disapproved by it, though the commercial spirit of it was identical with that which obtains among the large colleges which send their agents (deans or professors) among the preparatory schools every winter and spring to impress prospective students with the merits of their respective colleges.

Aside from this short explanation, I feel it is unnecessary to further any professional rancor between the writers of the before-mentioned correspondence which was undoubtedly the basis of this undeserved attack, affecting not only Dr. Buckingham, who was not Dean of the College at that time, but also the entire faculty.

The veterinarians and scientists who will devote their time and labor in teaching in the College of Veterinary Medicine of the George Washington University, request their professional brothers to suspend judgment until they are able to properly judge this school by its organization, teaching force and equipment.

The prospectus and announcement will be issued this month, and I believe that all fair minded veterinarians will readily see by the men who honor it with their names that the school will

be operated in a manner to meet the most advanced requirements of the Association of Veterinary Faculties and that its business methods will be thoroughly ethical and above reproach.

Yours truly,

J. P. TURNER, V. M. D., *Secretary*,
Board of Trustees.

MONUMENT TO THE LATE PROFESSOR
THOMASSEN.

AGRICULTURAL COLLEGE, N. D., June 5, 1908.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRs—

A few days ago I received a communication from Prof. H. Markus, of the Utrecht Veterinary School, stating that arrangements were being made for the erection of a monument to the late Professor Thomassen during the International Veterinary Congress in 1909. He asks me to bring this to the notice of the American veterinary profession and to invite them to participate in the arrangement and to contribute to the funds which already are being subscribed to.

It is needless to say that I am glad to comply with this request. Thomassen and his work on the treatment of actinomycosis, on the identity of human and bovine tuberculosis, on immunity against tuberculosis and on the etiology of "roaring" are all so well known as not to require special mention. Thomassen was honored by our A. V. M. A. by the election to honorary membership, and I have no doubt that our profession, either by individual effort or by action of our professional organizations, will be found willing to do honor to the memory of a great veterinarian, a man who has done more than his share in the up-building of our profession. Contributions will be received by Prof. H. Markus, Veterinary School, Utrecht, Netherlands.

Thanking you for anything which the REVIEW may see fit to do in this matter, I remain,

Yours sincerely,

L. VAN ES.

THE MONTANA SMOKE CASE AGAIN.

CHICAGO, June 20, 1908.

The Editors of the AMERICAN VETERINARY REVIEW,

GENTLEMEN:

J. K. Haywood, Chief of the Miscellaneous Laboratory of the Bureau of Chemistry, U. S. Department, in a government bulletin, No. 113 of that bureau, issued May 26th, 1908, entitled "Injury to Vegetation and Animal Life by Smelter Wastes," states the results of his investigation of inquiry to cattle by arsenic in the vicinity of the Washoe Smelter in Deer Lodge Valley. He was detailed by the government to investigate the injury to vegetable and animal life by smelter wastes around Anaconda, Montana, during a larger share of 1906 and the whole of 1907.

A claim made by the farmers, which required investigation, was that enough arsenic is given off from the smelter to settle on the surrounding forage crops and so poison the cattle. To determine this it is first necessary to show that the ores reduced at the smelter contain arsenic. Examinations of several samples of ore from mines which partly supply the smelter gave the following results:

TABLE V.—ARSENIC CONTENT OF ORE SAMPLES.

Serial No.	Name of mine furnishing ore	Metallic Arsenic	Serial No.	Name of mine furnishing ore	Metallic Arsenic
		Per cent.			Per cent.
4258	Speculator	12.95	4261	Never Sweat	0.45
4263	"	2.54	4262	Diamond	1.17
4259	Parrot .....	.51	4264	Anaconda	None
4260 .....	" .....	.45			

If we reject the first sample in Table V. as exceptional and consider the other ores as representative of those received at the Washoe Smelter, it will be seen that such ores contain 0.85 per cent. of arsenic. At this, if 8,000 tons of ores per day are smelted, which is the usual output of these mines per diem when at full blast, 68 tons of arsenic enter the plant each day, and, according to the officers of the smelter, only 2 tons of white arsenic are recovered daily. This, of course, does not mean 2

tons of metallic arsenic, but, for convenience of discussion, it will be considered as such. There remain, therefore, 66 tons of arsenic to be accounted for, which can only escape in a volatile form in the fumes, or be carried off in the tailings and slag. A determination of arsenic was made in two samples taken from the dump in which 0.11 and 0.09 per cent. were found, or an average of 0.09 per cent. It is evident that the amount found in the dump cannot account for the 66 tons of arsenic that go to waste; hence a considerable quantity must be volatilized. According to the investigations of Harkins and Swain, previously mentioned, the average amount of arsenic trioxid thrown off in the smoke during twenty-four hours is 59,270 pounds. Here again, however, as in the case of the sulphur compounds, the quantity of ores used was not given.

It is next necessary to show whether or not the escaping arsenic settles on the surrounding forage crops in large enough amounts to be injurious to cattle. For this purpose 20 samples of range grass and such cultivated crops as alfalfa were collected at distances varying from 1 to 10 miles from the smelter in various directions, but more especially down the Deer Lodge Valley. These samples were examined for total and soluble arsenic. The results obtained, calculated to a dry basis and expressed both as milligrams of arsenious oxid per gram of sample and grains of arsenious oxid per daily ration of 25 pounds, are given in Table VI.

From this table it is seen that arsenic was found in considerable quantities in every sample examined. In order that the cattle in this region may live at all it is evident that they must become confirmed arsenic eaters. Through the courtesy of Dr. D. E. Salmon the writer was able to examine microscopic sections and gross specimens of the viscera of a number of cattle that it was thought had been killed by eating forage containing arsenic. It was noted that the gastro-intestinal tract was inflamed and sections of the glands of the stomach and kidneys showed a desquamation of the epithelium, cloudy swelling, and in some cases fatty degeneration. The symptoms described by the farmers include inflammation of the mucous membrane of the upper air passages, running from the nose, diarrhea, thirst, emaciation and an inco-ordination of gait. From the above symptoms and post-mortem appearances, together with the amount of arsenic found in the various forage plants, there can be but little doubt that the cattle were killed by arsenic.

To give some idea of the distribution of arsenic on the soil in the vicinity of the smelter, samples were taken to a depth of

TABLE VI.—ARSENIC CONTENT OF FORAGE EXPRESSED AS ARSENIC OXID.

(Calculated to dry basis.)

Serial No.	Description of sample	Approximate distance and direction from smelter	Arsenious oxid per gram of dry sample	Arsenious oxid per 25 pounds avoirdupois of dry ration	Water soluble arsenious oxid per gram of dry sample	Water soluble arsenious oxid per 25 pounds avoirdupois of dry ration
			Milligram	Grains	Milligram	Grains
4114....	Bunch grass....	2 miles N.	0.103	18.0	0.083	14.5
4106....	*Alfalfa	2½ miles N. ....	.069	12.1	.041	7.2
4115....	Pasture grass..	3 miles N. ....	.069	12.1	.028	4.9
4117....	Range grass....	" .....	.054	9.5	.034	6.0
4116....	Pasture grass.. {	4 miles N., } Lost Creek. }	.041	7.2	.020	3.5
4107....	Red top.....	4 miles N. E....	.028	4.9	.014	2.5
4118....	Clover .....	" .....	.054	9.5	.028	4.9
4119....	Range grass....	" .....	.090	15.8	.020	3.5
4120....	{ Alfalfa and clover just cut. }	4½ miles N. E..	.054	9.5	.020	3.5
4108....	*Red top.....	5 miles N. E....	.055	9.6	.028	4.9
4121....	Range grass....	" .....	.090	15.8	.069	12.1
4122....	"	6 miles N. E....	.104	18.2	.041	7.2
4123....	"	8 miles N. E....	.055	9.6	.028	4.9
4109....	Alfalfa.....	10 miles N. E....	.070	12.3	.042	7.4
4124....	Red top.....	1 mile S. E....	.069	12.1	.041	7.2
4112....	Bunch grass....	3 miles E.....	.042	7.4	.020	3.5
4110....	*Field grass....	6 miles E.....	.055	9.6	.041	7.2
4111....	*Hay.....	" .....	.041	7.2	.028	4.9
4125....	Range grass....	4 miles W.....	.055	9.6	.028	4.9
4113....	Bunch grass....	6½ miles W.....	.055	9.6	.028	4.9

* Supposed to have killed cattle.

2 inches at varying distances from the plant. Since it might be claimed that any arsenic found in these samples was naturally present in the soil and did not come from the smelter fumes,

similar samples beyond the apparent range of the smelter smoke were also taken and examined for arsenic. The results obtained are given in Table VII.

TABLE VII.—ARSENIC CONTENT OF SURFACE TWO INCHES OF SOILS, EXPRESSED AS METALLIC ARSENIC.

(Calculated to dry basis.)

Serial No.	Approximate distance and direction from smelter	Arsenic per gram of dry soil	Arsenic in surface two inches (*) of soil per square foot	Serial No.	Approximate distance and direction from smelter	Arsenic per gram of dry soil	Arsenic in surface two inches (*) of soil per square foot
		Milligram	Grains			Milligram	Grains
4176	2 miles N.....	0.50	40.2	4179	3 miles E.....	0.20	16.1
4169	3 miles N.....	.30	24.1	4170	6 miles E.....	.08	6.4
4171 ....	" .....	.50	40.2	4177 ....	" .....	.08	6.4
4173	4 miles N. E..	.20	16.1	4181	4 miles W ....	.30	24.1
4180	5 miles N. E..	.30	24.1	4175	6½ miles W ..	.25	20.1
4174	6 miles N. E..	.30	24.1	4165	15 miles W ...	None	None
4178	8 miles N. E..	.08	6.4	4163	10 miles S. E.	None	None
4172	1 mile S. E ...	.50	40.2				

*Calculated on the basis of 69 pounds as the average weight of a cubic foot of surface soil.

From this table it is evident that the surface 2 inches of all soils examined in the vicinity of the smelter, at distances varying from 1 to 8 miles, contain large amounts of arsenic. It is also shown that this arsenic must come from the smelter, since the two soil samples taken beyond the apparent range of smelter smoke do not contain any arsenic.

From our point of view, the toxicological and pathological evidence in the case alone is of advantage. A mammoth manufactory, like the Washoe Smelter, may force the rural inhabitants of the Deer Lodge Valley to give way to it, though their cattle be continually destroyed by arsenical emanations from the smoke stacks. To us the case is interesting as an example of arsenical poisoning of cattle on a gigantic scale. Mr. Haywood clearly shows the proportions of arsenic emitted by the smelter and the rôle so much a quantity of volatilized arsenic as sixty-six tons per diem—for such was the arsenic content of the forage expressed as arsenious acid—in the destruction of vegetation and cattle alike. Mr. Haywood, good toxicologist

as he may be, probably paraphrases Dr. Salmon when he speaks of the symptoms and post-mortem appearances found in the stricken cattle. The report is made that one of the pathologists of the Bureau of Animal Industry, U. S. Department of Agriculture, has made a very thorough study of the post-mortem appearance of cattle dead in the Deer Lodge Valley region and will give the results of his work in the future. Meanwhile everyone interested in the toxicological side may obtain Mr. Haywood's bulletin by application.

D. ARTHUR HUGHES, Ph. D., D. V. M.

OBITUARY.

WILLIAM W. ANDREWS, D.V.S.

William W. Andrews, D.V.S., graduate of the New York-American Veterinary College, class of 1904, died at Brooklyn, N. Y., June 8, 1908, just four months after the death of his distinguished uncle, the lamented Roscoe R. Bell. Dr. Andrews' death was caused by rheumatic fever and occurred after an illness of two and a half weeks duration.

He was born at Charlottesville, Virginia, July 13, 1883, where his body was returned for burial. He was the eldest son of Mr. Julius B. Andrews, a noted dealer in high-class horses for many years at the American Horse Exchange, New York City, where his striking physique is still familiar to all horsemen.

WANTS CATS EXTERMINATED.—In his annual report to Governor Stuart, of Pennsylvania, Secretary Joseph Kalbfus of the State Game Commission recommends that the Governor in his next message to the Legislature ask that body for legislation by which the state shall pay a bounty on the scalps of the ordinary house cat. House cats, says Secretary Kalbfus in supporting his suggestion, are the greatest destroyers of bird life in the world, and he would like to see the cats annihilated, for until that is done the birds are not safe.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Editors, AMERICAN VETERINARY REVIEW :

DEAR SIRs—It would seem feasible to solicit space for a brief preliminary announcement of the approaching meeting of the A. V. M. A., even though the details, which are now beginning to draw into a harmonious unit, have scarcely reached a stage which can adequately meet with the expectancy of the profession; by another issue, however, we will hope to add further to the literary, clinical and social features, and thus substantiate this promise of a rare treat awaiting the veterinary profession when it assembles in Philadelphia.

Negotiations with the railroads are already sufficiently matured to offer attractive reductions throughout the territory of the Trunk Lines Association and to veterinarians contemplating journeying from the Pacific coast.

The literary program promises much, and at this time includes contributions as follows:

1. Dr. W. P. Ellenberger—"The Eradication of the Cattle Ticks in the South." Discussion opened by Dr. Tait Butler.
2. Dr. J. W. Connaway—"Hog Cholera."
3. Dr. W. Reid Blair—"The Pathological Effects of Captivity on Wild Animals."
4. Dr. C. H. Jewell—"Shipping Fever."
5. Dr. C. C. McLean—"Milk and Milk Inspection."
6. Dr. Lloyd Champlain—"The Hygiene of Dairying."
7. Dr. R. A. Ramsay—"Field Work in the West."
8. Dr. B. R. Rogers—"Tuberculosis."
9. Dr. S. J. J. Harger—"The Bier Treatment."
10. Dr. C. G. Lamb—"Our Personal Responsibility to the Profession."
11. Dr. H. S. Smith—"The Rôle of Protozoa in Pathology."
12. Dr. H. D. Gill—"Equine Glanders."

Among the other contributors, but not having yet announced the titles of their papers, are: Frederic J. Mayer, M. D., Special Medical Inspector to the Louisiana State Board of Health; Dr. D. Arthur Hughes, Dr. N. S. Mayo, Dr. H. Jensen, Dr. F. C.

Grenside and Dr. T. Bent Cotton. A few more papers are needed, likewise, clinicians should be secured, it is hoped that these will be forthcoming in the immediate future. Papers specializing on canine, bovine, equine, or, in short, topics embracing one or more of the ramifying fields of comparative medicine are solicited. Send your title at once.

Applications for membership should be secured; each member owes it to the profession to show the advantages that our uniformed associates may gain by obtaining membership in the A. V. M. A. Every member has been supplied with an application form; if more are needed they may be had for the asking. It is taken for granted that the members will pull together and make the Philadelphia meeting noteworthy from a standpoint of new members by the quality of the literary program, the clinical features and also by making good fellowship apparent upon all sides.

Let all veterinary surgeons, members or not, readers of the REVIEW, make plans that will bring them to Philadelphia on September 8, 9, 10 and 11, 1908.

Yours very truly,

RICHARD P. LYMAN, *Secretary*.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The regular quarterly meeting of the above association was held in San Jose June 10, 1908. The following program for the day was carried out:

9.30-11 a. m.—Clinics at Drs. Spencer and Healy's Infirmary, 224 East St. John street.

11 a. m.-2 p. m.—Interurban car ride, lunch at Los Gatos.

3-6 p. m.—Meeting of the association, Chamber of Commerce rooms.

7-10 p. m.—Banquet, followed by entertainment by local talent.

The meeting was called to order by President D. F. Fox, twenty members and eight visitors being present. The minutes of the last meeting were read and approved. In accordance with a motion passed at the last meeting President Fox declared the places of Drs. Thomas Carrol and C. B. Othier, on the Judiciary Committee, to be vacant. He appointed Drs. C. L. McGowan, of Sacramento, and Thomas Healy, of San Jose, in their stead.

Dr. Otis Longley, of Fresno, Chairman of the Judiciary Committee, reported that they had secured one conviction (Holmes, of Oakland), but that it had been appealed to a higher court. In another case (Dunbar, of Oakland) the jury had disagreed. A new prosecution was being held over his head and he had stopped practice. A lawyer was being employed to write to the various district attorneys. It is thought that a letter from a member of the bar to the district attorneys would have more weight than from the committee. "If there are annoying illegal practitioners in your locality notify one of the Judiciary Committee. The members of the committee are: Otis A. Longley, Fresno; G. J. Donnelly, Oakland; L. A. Danielson, Madera; C. L. McGowan, Sacramento, and Thomas Healy, San Jose.

"The committee will have their lawyer notify your district attorney, whose business it is to proceed against the quack. In case there is difficulty in securing evidence, the committee will send a detective to attend to that part."

Drs. Donnelly and Danielson also spoke of the good influence exerted by the prosecutions undertaken and threats sent out by the committee.

Dr. Browning spoke in favor of employing Attorney T. J. Jordan, had been successful in this kind of legal work.

The Secretary read a communication from Attorney George E. Maloney, Special Agent of the State Medical Society.

Dr. Archibald suggested that the matter of employing legal talent be left entirely to the Judiciary Committee.

Under the head of applications for membership a lengthy and heated discussion took place regarding the eligibility to membership in this association of the veterinarians who were licensed at the last meeting of the "old board" of State Veterinary Medical Examiners, which was held in Los Angeles in the spring of 1907. The following resolution was presented, moved and seconded: "That the possession by a veterinary graduate of a recognized college of a license issued at the above mentioned meeting should not debar his application for membership in the association from being considered." The motion was lost, seven voting in the affirmative and twelve in the negative.

There being no objection the meeting was opened under the head of new business.

Mr. Henry Dore, a prominent horse breeder of San Jose, spoke on the value of improving the stallions of the state and the need of a stallion registration law.

A motion was carried instructing the Secretary to convey to Governor Gillette the request of the association that Dr. R. A. Archibald be appointed one of the delegates from the state to the International Congress of Tuberculosis.

The Secretary read a communication from Secretary Lyman, of the American Veterinary Medical Association, inviting the association to send delegates to the Philadelphia meeting. A motion was made that it be placed on file and that the President be empowered to appoint delegates.

Mr. Brooks, Secretary of the San Jose Chamber of Commerce, made an interesting speech of welcome in which he described the great resources and prospects of the Santa Clara Valley.

Dr. Healy read a carefully prepared and instructive paper entitled "Blood."

Dr. Haring and Dr. Archibald spoke on Clinical Examination of the Blood and its possible value to the veterinarian.

Dr. Keane, State Veterinarian, spoke of the work that was being done through his office in fighting sheep scab. He said in part: "A law was enacted at the last Legislature designed to control the disease, but for certain reasons the Governor failed to sign it. The disease has caused great loss in this state and it was up to the State Veterinarian to do something. Through the assistance of a proclamation by the Governor, and the co-operation of various counties and the Bureau of Animal Industry, a systematic dipping of all the sheep of the state was begun. Over sixty inspectors are at work. About 5,000,000 dippings have been made since the first of March, and the work is still vigorously progressing. It is believed that the number of flocks in the state infected with scabies has been reduced from 75 per cent. to 6 per cent. The most efficient dips have been the tobacco dips and the lime and sulphur dip. Some of the cresol dips have proven unsatisfactory. The temperature of the dip should be between 105 and 110 degrees F. After July 1 the dipping is to be carried on only in flocks found to be infected with scabies."

Dr. Longley spoke of the good results he had experienced in the use of an antiseptic called Pix-cresol in the treatment of wounds.

Dr. Browning described an outbreak of an unknown disease which had caused great loss of calves in the Santa Clara hill regions.

President Fox appointed the following committee to draft resolutions to be presented at the next meeting and which may eventually be sent to the Legislature to assist in promulgating a law regarding the registration and examination of stallions: Dr. Longley, of Fresno; Dr. Browning, of San Jose, and Dr. Hogarthy, of Oakland.

A motion was carried that Dr. C. M. Haring's name be included with Dr. Archibald's in the Secretary's communication to the Governor regarding delegates to the International Congress on Tuberculosis.

A motion was carried instructing the Secretary of the association be authorized to convey to the Chamber of Commerce the thanks of the association for their entertainment.

A motion was carried expression the appreciation and the thanks of the association to the San Jose veterinarians for their hospitality.

Resolutions of thanks were voted to Drs. Healy and Keane for their part in the afternoon's program.

The association adjourned to meet in Alameda the second Wednesday in August.

C. M. HARING, *Secretary*.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting of the above association was held on the evening of May 27 at 514 Ninth street, N. W., Washington, D. C. The President, Dr. John Lockwood, was in the chair. Those present were: Drs. A. M. Farrington, John Lockwood, C. B. Robinson, F. M. Ashbaugh, J. C. Heide, H. S. Gamble, M. Page Smith, E. S. Walmer, C. C. Weeks, H. F. Hungerford, T. H. McKeown.

Drs. J. C. Heide, T. H. McKeown, M. Page Smith, E. S. Walmer and C. C. Weeks were appointed as a committee on contagious diseases.

The committee, consisting of Drs. W. P. Collins, C. C. Weeks and C. B. Robinson, appointed at the last meeting to draft and present to the Commissioners of the District of Columbia resolutions recommending the muzzling of all dogs running at





DR. VERANUS A. MOORE,
Director New York State Veterinary College.

AMERICAN VETERINARY REVIEW.

AUGUST, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, June 15, 1908.

RHINITIS OF DOGS AND ITS COMPLICATIONS.—Prof. G. Hebrant and his adjunct Hermann have published in the *Annales of Belgium* an article on *Rhinitis of dogs and its complications*, which is quite interesting.

They say: If vulgar rhinitis may be considered as a benignant disease, when it occurs in our large domestic animals, this condition is not always the same when it is observed in individuals of smaller species, and especially in dogs, where it may prove quite serious in those where the nose is short and in which the configuration of the nasal cavities, the great vascularity of its mucous membrane, the extent of the olfactory portion, the complexity of the meatuses and sinuses, all are, so to speak, predisposing conditions for the development of a diseased process, which also render it of difficult access to any medical interference. There is, indeed, in such animals of the canine species, bulls, pugs, King Charles, etc., a conformation by which rhinitis may become a very serious affection. The etiology and the symptoms of rhinitis are well known. But the treatment often gives very unsatisfactory results. Indeed in some cases, rhinitis may give rise to complications of asthma, in those animals whose nose is very short. Asthma is manifested by loud breathing, occurring by spells, when the dog is walking or after a series of sneezes, more or less frequent. The poor little fellow stops moving, with both fore legs spread apart; he has a roaring inspiration; his diaphragm contracts spasmodically and his ribs are raised on

their upper extremity. The attack lasts but a few seconds and soon the animal anxious and distressed is more or less threatened with asphyxia. Soon, however, the normal condition reappears until another attack comes to add to his misery. Against this frequent and very rebellious condition, Profs. Hebrant and Hermann recommend, when the attack comes on, inhalation of chloride of ethyl, nitrite of amyl, chloroform or spirits of turpentine. If the spells are too frequent they advise sub-cutaneous injections of morphine or chloral by ingestion.

* * *

But there is another complication of rhinitis in dogs far more serious and which presents much analogy to ozena of man. A case is reported by these eminent observers which shows it. A little stable skye terrier had a bilateral muco-purulent nasal discharge which was adherent to the edges of both nostrils. As there were no other apparent lesions, fumigations of vegetal tar were only prescribed. But the discharge increased, and soon epistaxis took place after each inhalation. Fumigations of hay tea were ordered, the discharge kept increasing and became foetid. In the meanwhile there appeared ocular troubles. Conjunctivitis and keratitis with ulcerations of the cornea, which was accompanied with escape of the aqueous humor and formation of a staphyloma. The right eye followed and became also affected, while the discharge seemed to be reduced on the left side. Sprays of tincture of iodine were resorted to in the nasal cavities, but without improvement and finally the poor blind sufferer was killed. In making a post-mortem examination, it was found that most of the septum nasi was destroyed. In the left nasal cavity there was a mass of putrid remains of the destroyed turbinated bones and of the ethmoidal volute. The nasal bone, the nasal portion of the maxillary were more or less necrosed and the mucous membrane was entirely destroyed. The left frontal sinus was full of mucosities and of gangrenous small pieces of bones. It communicated with the left sinus and even the walls of the orbital cavity were involved and diseased. The

lacrymal bone, the palate, frontal and superior maxillary were also involved. The lesions on the right side were more localized and attacked the mucous membrane principally. With such lesions, one can appreciate that no treatment could be followed by good results. Free trephining might have been tried; but perhaps the result would not have been any better. And all had started with an apparent plain attack of simple rhinitis.

* * *

SPIROCHÆTOSIS OF FOWLS.—The REVIEW some months ago, in September, 1907, extracted from the *Transvaal Agricultural Journal* a few remarks in relation to two ticks, of which illustrations were also reproduced. To the presence of these, the original author, Mr. Howard, Acting Entomologist to the Transvaal Government, attributed the death of fowls which had died in great number and where evidently the death was due to the loss of blood sucked from them by the ticks. But Mr. Howard added that it was thought that the ticks might also transmit some infectious diseases to fowls under certain circumstances, but that this was not common and that no absolute proofs of it existed.

Under the heading of "Spirochætosis of Fowls in Southern Rhodesia," the *Journal of Comparative Pathology and Therapeutics* prints an article from Ll. E. W. Bevan, M. R. C. V. S., Government Veterinary Surgeon, which shows that the last supposition of Howard was correct, "in the fact that these ticks are capable of introducing a special organism, namely, a spirochæte into the body of its host, giving rise to a septicæmia, which is an important, if not the principal, factor in the death of the fowl. When a little blood from a sick fowl is injected under the skin of a healthy bird, spirochætes are found in the blood of the inoculated bird on the second day, increasing in number until the third day and then disappearing." Mr. Bevan then gives the symptoms, lesions observed in an outbreak which he considered as a typical example with the treatment resorted. I briefly résumé them.

Symptoms—Birds apparently healthy over night are found dead in the morning. In less acute cases birds are dull and mope,

with muffled feathers. There is loss of power in the limbs, wings are drooping, the birds are lame, squat about or are unable to rise. There is great thirst. Animals drink until they cannot hold any more. Diarrhea is abundant. Perhaps there is loss of appetite or again the bird eats to the time of death. Towards the end the bird lies with eyes closed and his head on the ground.

Lesions—There are those of severe anæmia. The place of attachment of each larval tick has an hemorrhagic area. In some cases where ticks were plenty, no blood remained in the carcasses. In others where ticks were few and no signs of loss of blood existed there were lesions pointing to septicæmia.

Preventive Measures—Strictly hygienic indications. Isolation of the new birds, destruction of infected coops, cleaning of fowl-runs, white-washing and general measures of disinfection and cleanliness.

Medical treatment—As soon as it is evident that a spirochæte is responsible for the death of the tick-infected fowls, quinine, methyl-arsenite of soda and atoxil have been tried. This last is the one that has seemed to give most satisfactory results.

As these ticks are frequently observed all over the world, it is probable that fowls can be infected in a similar way and that some of our readers may find some interest in the above concise remarks.

* * *

INTRA-PERITONEAL INJECTIONS OF CHLORAL.—On previous occasions I have alluded to the various applications that were carried on here with chloral, when used in the peritoneal intra-peritoneal injections, and I referred principally to those that Professor Sandrail, of Toulouse, made to obtain general anæsthesia on subjects which were used in the classes of practical operative surgery. Since that time two communications have been presented to the Société Centrale, where the use of chloral for similar purposes is extensively considered. These papers were the object of a prize for the authors. But it is not

only as a means for general anæsthesia that the use of chloral seems to recommend itself. There are indications which our American veterinarians have for a number of years taken advantage of, namely, in the treatment of colics. It is unnecessary to say how we in America administer it. A bolus is made, thrown in the patient's throat, and in a short time the effect is manifest. The patient is asleep.

But it is not every one who can give a bolus. Americans excel in that way of administering medicines. I believe many veterinarians in England do also. I am not sure about the Germans. But I am positive the French do not. And if some do they dare not ask a stable nurse to do it for them. It is then that one of the great advantages that can be obtained by the use of chloral must be lost, bearing in mind that its administration in drenches, is certainly a difficult and possibly a dangerous operation.

The results that have been obtained by Mr. Breton, late adjunct to the chair of surgery at the school of Alfort, seem to show that administered in intra-peritoneal injections in cases of severe attacks of colics, most satisfactory results have been obtained by him.

Indeed, recalling the effects of chloral injected directly in the peritoneum by others, the thoughts came to Mr. Breton to resort to that way so as to relieve the violent manifestations observed in cases of colics. He experimented in various ways and finally adopted the following: An isotonic solution of chloride of sodium and chloral is prepared, viz., with 7 grammes of chloride, 100 of chloral and 1 litre of sterilized distilled water. Isotonic solutions are always supported better by the tissues. Cells are not altered, and local complications are less frequent and less dangerous. The solution is held in an apparatus used to make injections of physiological serum. The trocar used for bleeding is employed. This is pushed perpendicularly through the skin, as in cases of enterotomy, and the liquid is slowly injected, passing directly in the peritoneum.

With this method Mr. Breton has injected chloral 78 times in cases of severe colics and in only one has the operation proved fatal. There had been introduction of the liquid between the peritoneum and the layers of muscles, extensive necrosis and an enormous abscess followed. "Always," says Mr. Breton, "anæsthesia is rapidly obtained." After a few minutes the patient is in a deep sleep and to the violent pains of the colics succeeds a complete quietness which lasts four, five, six, seven hours and even more and permitting without difficulty whatever treatment is indicated. Intra-peritoneal injections are absolutely harmless and it is the best method to resort to on account of the rapidity and certainty of the narcosis."

It is certainly a more professional way to administer the drug, but I fancy that for many hand-balling will still remain the most practical.

* * *

VETERINARY DIRECTORIES.—In the June number of our thirty-first volume I had the great pleasure of calling the attention of our readers to an excellent little booklet, the directory of the Veterinary Surgeons of Pennsylvania, due to the exertions of Dr. W. H. Hoskins, the secretary of the State Board of Examiners. In my remarks, besides giving our esteemed colleague all the credit that he deserved, I suggested the idea that a similar work and a like publication might be issued by our numerous states, so as to have the full statement of our professional representation. It might not be essential that new editions should be published very often—once every five years, for instance, might do. Possibly some little addition could be introduced, among which I take the liberty to suggest the date of graduation, the official special work done, the connection with sanitary service or in schools, etc. Of course, this would involve extra expense, but if instead of being gratuitously given away they were disposed of at a trifling price, perhaps this expense could be reduced to a minimum.

I have been reminded of this by looking over an old announcement of the A. V. C., where something like what I suggest was done. In fact, in some countries of Europe the same is already done. It is far from my mind to recommend these additions because of their existing in some similar works of old Europe. But never mind, the idea seemed to me practicable and advantageous.

By the way, in glancing over one which is published yearly here in connection with a daily visiting book and that almost every veterinarian purchases and uses, I found lately material for a queer statistic. Perhaps it may interest some of our readers. Taking into consideration the number of graduates from the three veterinary schools on January, 1908, as registered in this diary, I found that there are 2,980 altogether, of which 2,513 are in civil practice and 467 are in the army. I had the idea to search how old some of those 2,513 were, taking for average that they had graduated only at 21 years of age, and counting them still alive in 1908. The statistic reads as follows:

There remain	Who graduated in	And are now	There remain	Who graduated in	And are now
18	1859	70 years old.	4	1848	81 years old.
16	1858	71 " "	6	1847	82 " "
10	1857	72 " "	12	1846	83 " "
16	1856	73 " "	6	1845	84 " "
16	1855	74 " "	4	1844	85 " "
12	1854	75 " "	2	1843	85 " "
17	1853	76 " "	3	1841	88 " "
10	1852	77 " "	3	1840	89 " "
6	1851	78 " "	1	1839	90 " "
12	1850	79 " "	1	1838	91 " "
1	1849	80 " "			

Making altogether 176 who are beyond 70 years old. Of those there are recorded only 31 who are said not to be in practice any more. Supposing that those 31 are the oldest, it yet

would mean that there are some who are practising, although they are 82, 81 years or less, say, down to the seventies. I leave to others the task to make conclusions in relation to such wonderful love to still practice, as exhibited by those venerables.

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BIBLIOGRAPHY.—Dr. N. Lanzilloti-Buonsanti is completing his "Trattato di Tecnica e Terapeutica Chirurgica Degli Animali Domestici" (Treatise of Technic and Therapeutic Surgery of the Domestic Animals), by the publication of the first section of the third and last volume, which is devoted to the surgery of the extremities.

This first section is composed of two fasciculæ, illustrated by numerous plates, many of which are photographic reproductions. The author has followed the original plan of the two first volumes. The anatomy of the extremities is concisely considered and while it covers but a few pages it forms a very interesting vade mecum on the subject. The physiology is much more extensively treated and the illustrations are of much assistance in the studies of the different changes and modifications and problems pertaining to locomotion. The chapter on generalities of lameness, their classification, the diagnosis and the various ways to reach it, with the many illustrations that are presented, bring us to the chapter IX., which began the consideration of the diseases of the extremities and their symptoms. In this part there is a peculiar arrangement, which I consider a very valuable innovation. While the diseases and lesions are considered according as they are met with in the various systems, cutaneous, muscular, bony, nervous, etc., merely the important and specific symptoms are given, and that in a kind of simple, concise exposé, which permits the reader to at once and without great searching find the part which interests him.

In these two fasciculæ one can judge what the entire volume will be and when it is completed the entire work will, no doubt, prove of general usefulness and reference in the veterinary world.

* * *

A short time ago I was making allusion to the work of our friend Dr. Knowles on artificial fecundation. Lately my attention was called in the REVIEW to an article from our worthy collaborator, Dr. Gribble, and just now I receive a little work from a veterinarian, Mr. Ed. Curot, of whom I have already had occasion to speak in these pages when his book on the "Use of Sugar in Food to Animals" was issued.

To-day the new book is entitled *Fécondation et Stérilité*. I am quite sure many of our friends will read it. It is a part of the "Encyclopedie de l'Agriculture," sold by C. Amat, 11 rue de Mézieres in Paris. It forms one volume in twelve of nearly 300 pages, where the author has undertaken to study the means of reducing the large percentage of losses that sterility imposed upon breeders. The various and numerous causes of sterility in males and in females are carefully considered, the possibility of a positive diagnosis is exposed and a rational preventive and curative treatment indicated. The last part of the work relates to artificial fecundation and concise mention is made of what has been done in America in that direction. It is a very instructive and interesting volume.

* * *

In conclusion, I am pleased to acknowledge the receipt of the following: The Twenty-third Annual Report of the Bureau of Animal Industry for 1906; the No. 3, Vol. XIII., of the Archives of Biological Sciences, published by the Imperial Institute of Experimental Medicine at St. Petersburg; Bulletin 250 from Cornell University Agricultural Experimental Station on Bovine Tuberculosis, and one on the Dissemination and Control of Tuberculosis, as illustrated in the bovine species, both by Dr. V. A. Moore; a pamphlet on Meat and Milk Hygiene, by Dr. W. H. Dalrymple, M. R. C. V. S.; finally, the Journal of the Alumni Association of McKillip Veterinary College and the announcement of the San Francisco Veterinary College of 1908-1909.

* * *

EUROPEAN ITEMS OF VETERINARY INTEREST.—I will close this month with a little journey among the items of veterinary interest on the continent as I find them in professional journals.

In Belgium—The Société of Veterinary Medicine of Antwerp has decided to publish a bulletin, a kind of journal which will give reports of the meetings, a professional chronicle, original articles, etc. It will be published in the French and Flemish languages.

In Holland —Dr. D. A. de Jong, director of the Abattoir of Leyden, general secretary of the Ninth International Veterinary Congress, has been appointed professor of comparative pathology at the University of Leyden.

In Austria—Since a long time Austrian veterinary students are clamoring for reforms in the veterinary schools and especially asking the transfer of the school from the Secretary of War's jurisdiction to that of the Secretary of Public Instruction. Their claims remaining ignored, they revolted, were turned out of the school and then made great manifestations before the Parliament and the University.

In Germany—At the school of Munich Prof. Dr. Joseph Mayr is appointed to the chair of surgery and history of medicine. He is also placed at the direction of the surgical clinics for small and large animals.

Baden-Baden—The permanent Commission of International Veterinary Congresses met in that town in April last, under the presidency of Dr. Lydtin. Delegates from England, from the Cape and from Denmark only were present. M. M. Binder, of Vienna, and Leclainche, of Toulouse, were selected to prepare an international form of declaration of contagious diseases. The Commission then prepared the order of the day for the next congress, which will be held between the 14th and 19th of September, 1909. Fifty questions had been proposed, but ten of general interest were retained. The reports will be printed in three languages, as was adopted on a previous occasion and will be distributed as soon as possible.

At Dresden—A laboratory is to be established at the veterinary school for the study of "Opsonins," the soluble substances contained in normal sera or in specific immune sera and which act in phagocytosis to increase it and render it more efficacious. The knowledge of those substances, or better, of the opsonizing properties of sera, is utilized in the treatment of infectious diseases by the method of Wright, of London, which consists in injecting under the skin, at repeated times, emulsions of cultures of the proper lesions of a patient, first sterilized by heat.

A. L.

THE GOVERNMENT STANDARD FOR VETERINARY COLLEGES:

The last report of the Committee on Intelligence and Education, A. V. M. A., presented at Kansas City in 1907, by Dr. Leonard Pearson, chairman, gives a comprehensive outline of the organization, equipment and budget considered necessary for a veterinary school to possess in order to teach the veterinary sciences in an adequate manner in a way that is proportionate to the needs of the country and in harmony with the development of modern technical and professional schools.

Such a school, according to the committee's report, would require a \$350,000 equipment with an annual budget of \$75,000 to teach from 200 to 300 students; the standard for students entering upon their professional studies to be on a plane with that required for medicine, law, engineering, agriculture, etc., viz., four years of successful high school; the duration of the course of veterinary instruction to be four years of nine months each. Such in brief is the standard of attainment set by the A. V. M. A. for those veterinary schools which are to take high rank in America.

It is well for the profession to set a high standard for veterinary schools. The REVIEW stands for higher education. It also recognizes the fact that we must first meet conditions as they

exist in this country at the present time before we can expect to attain our ideals. We are of opinion that the expert committee appointed by the Secretary of Agriculture to investigate the schools and recommend a standard for matriculation, course of instruction, etc., to be maintained in order for their graduates to be eligible to take the United States Civil Service examinations for appointment in the government service has done splendid work and has acted wisely in establishing at this time a minimum standard which is in the reach of every school in the land. Its recommendations are reasonable and practical and well adapted to meet present needs and conditions. True, a few of the schools are far in advance of the Government demands, yet on the other hand there are more that the new requirements will bring up to a higher plane and thereby elevate the profession as a whole. Several of the schools are not going to take advantage of the time allowed but propose to meet the Government requirements at once.

The colleges are classified on the basis of the courses of instruction they are giving. Class A consists of those colleges whose graduates are recommended as eligible to the U. S. Civil Service examinations for Veterinary Inspector in the Bureau of Animal Industry. Class B consists of those colleges whose graduates have been allowed to take the Civil Service examinations subsequent to 1898, but are not recommended. Class C are the colleges whose recent graduates are not eligible to take the Civil Service examinations and are not recommended.

The matriculation requirements are equivalent to the second grade examination as published by the U. S. Civil Service Manual of Examinations, supplemented by United States history and geography of the United States and its possessions; the course in veterinary medicine covers a period of three years of not less than six months in each year, exclusive of final examinations and holidays.

Elsewhere in this issue of the REVIEW we print the full text of the Government report and recommendations, issued July 6,

1908, which we commend to the careful consideration of our readers. Matriculation requirements, schedule of instruction, length of course, grading of course, constitution of faculty and qualifications of instructors, classification of veterinary colleges and requirements for graduation are among the subjects that the committee make recommendations upon, all of which have been approved by the Secretary of Agriculture and will become operative for each institution not later than the close of the college year 1908-9.

No college in Class A can give credit to any student for any work done at colleges in classes B and C. By referring to recommendation No. 27 of the Government report it will be observed that the wording of the recommendation permits the schools in Class A to commence enforcing the regulations at any time after the issue of the circular. In order to prevent students at present registered in colleges in classes B and C from deserting these colleges and joining colleges in Class A, it has been decided that the colleges in the latter class shall immediately respect and enforce the regulations in this respect. As a consequence graduates or students of colleges in classes B and C are ineligible to enter colleges in Class A.

The influence of the action of the Government will certainly be of great value to the profession at large, and the REVIEW is of opinion that it will prove a potent factor in bringing about a decided advance in veterinary education.

The Government report ought to make the coming meeting of the Association of Faculties and Examining Boards one of considerable interest and much importance to the membership of the A. V. M. A. We are looking forward to the discussion that will arise then with more than passing interest.

It is evident that largely increased funds are needed if veterinary colleges are to maintain a high standard. Some states have appropriated money for veterinary education and small appropriations of the federal funds donated to land-grant colleges have in some instances been used to support a limited amount of

veterinary work, but aside from this the federal government has done nothing directly for veterinary education.

Now, that the Government has officially recognized the value and importance of veterinary education to the nation, and has taken measures to elevate the standard of such education in the interest of the administration of the Department of Agriculture, an appeal should be made to Congress for an appropriation sufficient to place veterinary education in this country upon a substantial basis, as it has done for agricultural education. The advancement of agriculture as well as the prosperity and health of the people depend, in no small degree, upon the intelligent application of the veterinary sciences to the needs of the country.

GOOD NEWS FROM LOUISIANA.

Reforms are slow of accomplishment where their importance is neither fully realized nor appreciated, but with well-directed and persistent effort they can usually be brought about, although often discouragingly slow.

Twenty years ago a graduate in veterinary medicine in Louisiana, as in most other sections of our vast domain, was nothing short of a curiosity. The past twenty years, however, have witnessed wonderful changes in things veterinary, and those changes have been for the uplifting and upbuilding of the veterinary profession, and for the benefit of livestock husbandry, for which the state of Louisiana is so well adapted.

The REVIEW is delighted to be able to announce to the profession at large that the General Assembly of the state of Louisiana has just passed a law regulating the practice of veterinary medicine and surgery in that commonwealth, and at the same time has created a board of veterinary medical examiners to pass upon the fitness of graduates who propose entering the state to engage in practice. For the passage of this bill, Dr. Dalrymple gallantly gives the credit to Dr. J. Arthur Goodwin, of New

Iberia, La., a member of the A. V. M. A., who not only drew the bill up, but worked untiringly for it among the members of the Legislature, and spoke for it before the different committees to which it had been referred.

This is not all. A live stock sanitary bill had been introduced in the Louisiana State Legislature, at each biennial session, since 1902. The persistence with which the measure was introduced, which was with as much regularity as the legislative session itself, is said to have got it into disfavor with the Senate Committee to which it had always been referred. "Nil desperandum," however, was the motto of Louisiana's loyal veterinarians and the reader can imagine the supreme pleasure of Dr. Dalrymple as he stood in the Senate Chamber and heard the result of the vote which made the live stock sanitary bill a law, which is the satisfactory result of quite a number of years' discouragement, blended with a modicum of hope and determination.

The personnel of the Board, when organized, will be the State Commissioner of Agriculture and Immigration as ex-officio chairman, the Professor of Veterinary Medicine in the Louisiana State University and A. & M. College; the Entomologist of the State Experiment Stations, and two citizen stockmen who shall be financially interested in the breeding and raising of live stock, and who shall be appointed by the Governor. The Secretary and Executive Officer of the Board shall be a member of the veterinary profession who is a graduate of a reputable and recognized veterinary college.

The reason for the Experiment Station Entomologist being on the Board is on account of the law embracing the work of tick-eradication in the state, and the fact that this work has been, and will continue to be for the next two years, in the hands of the Louisiana State Crop Pest Commission, which is an entomological department, and the secretary of this commission, who is also entomologist of the Stations, having had considerable experience along this line.

Unfortunately, the live stock sanitary bill had to be introduced, at this time, without an appropriation, otherwise it would have been lost. However, it was a consideration to have it enacted into law, and placed upon the statute books, and it is expected that the next General Assembly will see fit to appropriate the necessary funds for the effective carrying out of its provisions. "Half a loaf is better than no bread" these times, and especially in a section of the country where the importance of such legislation is not, even yet, fully realized.

It will be seen, therefore, that, with a reorganized state veterinary medical association for the mutual benefit, educationally and otherwise, of the members of the profession in the state, with a law regulating the practice of veterinary medicine and surgery for the protection of the public from unqualified practitioners, and with a live stock sanitary law to afford protection to stockowners against the introduction and spread of the fatal microbic diseases to which animals are susceptible, Louisiana is striding onward and upward and getting into line with her progressive sister states; all of which, we feel sure, will be received as good news by the profession throughout the length and breadth of the land.

Congratulations to the people of Louisiana and congratulations to Dr. Dalrymple and his co-workers.

THE NEW DIRECTOR OF THE NEW YORK STATE VETERINARY COLLEGE.

The technical training in pathology and bacteriology of Dr. Veranus Alva Moore, whose portrait adorns this issue of the REVIEW, and the far-reaching value to comparative medical science of his research work and the broad scope for its application in human and animal medicine have long been recognized and appreciated by the veterinary profession.

His early work in the laboratory of the Bureau of Animal Industry at Washington under Drs. D. E. Salmon and Theobald

Smith, and his own work in said Bureau, as chief of the Division of Animal Pathology, after Dr. Smith's resignation to accept a professorship in Harvard University; his subsequent work at Cornell University as a member of the Veterinary Faculty; his researches in the field of comparative pathology and bacteriology; his brilliant contributions to comparative medical science and enrichment of its literature, and the practical value of his services to the State of New York as a scientific expert in the control of serious outbreaks of infectious diseases of animals, contribute in no small degree, to make Dr. Moore a worthy successor to the venerable veterinary scholar and educator, Professor James Law, who is now retired from the directorship under the Carnegie foundation after a long and notable career.

In addition to his duties of administration, Dr. Moore retains his own chair of Comparative Pathology, Bacteriology and Meat Inspection, while a young man of university training, and some experience in practice, has been appointed Acting Professor to occupy Dr. Law's chair of Veterinary Medicine. This gentleman is Dr. D. H. Udall, a graduate of the University of Vermont, and also of the N. Y. S. V. C., class 1901. For the past five years Dr. Udall has been teaching in the Veterinary Department of the Ohio State University, and last spring he was made full Professor of Veterinary Medicine in that institution. Dr. Udall will spend some time in Europe studying clinical veterinary medicine. The work in medicine will meantime be strengthened by several short courses on special subjects given by distinguished members of the profession:

It is the new Director's purpose to bring up the practical end of the college to as high a level as possible. Besides lectures on special topics by those most experienced, arrangements for a considerable addition to the clinical facilities have been made. Since the enforcement of the higher requirements for entrance the college is obtaining a very fine class of men who will do the profession honor and the agricultural and public health interests of the country great good. The wonderful advances in scientific

veterinary medicine require to meet the demands of to-day men of good education and thorough technical training. It is confidently expected that the Department of Medicine will be maintained at a high standard and that soon the best methods afforded by European veterinary colleges for teaching both theoretical and clinical medicine will be employed.

Among other prominent pathologists, Dr. Moore was engaged in extensive investigations as an expert in the now famed Smelter Smoke Suit in the Deer Lodge Valley, Montana, in 1906 and 1907. He served as a member of the commission appointed by the Secretary of Agriculture to revise the meat inspection rules and regulations of the Bureau of Animal Industry in 1907. He is active in the work of the American Veterinary Medical Association, being chairman of the Committee on Diseases, and is deeply interested in the work of the International Congress on Tuberculosis. The new Director's writings are all of a technical character and are of much scientific and practical value. The third edition of his "The Pathology and Differential Diagnosis of Infectious Diseases of Animals," is now in press. The new edition will be welcomed and appreciated by the profession. Dr. Moore is a valued collaborator of the AMERICAN VETERINARY REVIEW.

Dr. Moore's appointment is a well-deserved one. In view of the character of the work he has done, the REVIEW confidently believes that his thought and labors will be for the further advancement of veterinary education and the welfare of the profession in general.

OUR DISTINGUISHED GUESTS.

Many of our members contemplate attending both meetings—the A. V. M. A. at Philadelphia and the International Congress on Tuberculosis at Washington—but to those who can only spare the time to attend one meeting we would strongly advise them to attend the Philadelphia meeting.

In the first place it is a courtesy we owe to the distinguished foreigners who honor us with their presence at the A. V. M. A. convention. It is a rare privilege indeed to have the opportunity to personally meet these noted investigators and writers from abroad. We believe this will be more appreciated by many than the listening to the reading of learned papers in a foreign tongue, especially as the papers are to be published in three different languages and will be available to peruse at home. Men are saying that they would like to meet or at least to see Dr. Bang and Dr. Ostertag, and others. It will be something to them even to have seen these men.

Another thing, as yet no word has been received from any channel indicating what the program of the veterinary division of the Washington meeting will contain. This lack of information and in the presence of definite knowledge that we will have a good program at Philadelphia should impress itself upon our membership.

If possible attend both meetings. If, however, you can be present only at one attend the Philadelphia meeting.

It affords us pleasure to present elsewhere in our pages the program of the A. V. M. A. meeting, together with the names of officers, committees, portraits of officers, view of the Headquarters, A. V. M. A., and also a view of Houston Hall, University of Pennsylvania, where the sessions will be held. Information as to transportation and the social features, so far as arranged, are also included in the account.

At the present writing every sign points to the largest gathering and the most successful meeting of its kind ever held in America if not in the world.

LOCO-WEED POISONING AND BARIUM SALTS.

If it were not for the fact that the full report of Crawford's investigation of loco-weed poisoning, and his brilliant discovery showing that it is the inorganic constituents, especially barium,

which are responsible for its poisonous action upon horses and cattle, previously referred to in the REVIEW, has been published in a bulletin issued by the Government Bureau of Plant Industry, which is available to all those interested, we would give space in our pages to the investigator's entire paper on account of the importance of the contribution to toxicology and pharmacology and to the inestimable value of the discovery in the practice of medicine.

We feel, however, that the subject is of sufficient general interest to all our readers, to warrant us in publishing a comprehensive synopsis of the principal points brought out in the investigation. This we do in this issue. The résumé has been carefully prepared by our able collaborator, Dr. D. Arthur Hughes, which may be found elsewhere under the head of "Correspondence."

FATALITIES from sunstroke and prostration among work-horses in New York, during the recent hot spell, are said to surpass all records except it be that of the summer of 1896 when more than 1,200 equine toilers succumbed in the metropolis in one week.

A LITERARY GEM.—The following resolution was adopted by the Board of Aldermen on Tuesday, July 21, and appeared in *The City Record*, the official organ of The City of New York:

"Resolved, That permission be and the same is hereby given to Reiner & Wolff to temporarily occupy, during intervals between absences, for the convenience of the public, and with the full concurrence of the landlord and occupant of the premises known as No. 71 Sheriff street, in the Borough of Manhattan, with a furniture van, at the corner of Sheriff and Rivington streets, in front of the aforesaid No. 71 Sheriff street, in the aforesaid Borough of Manhattan, provided that such space temporarily occupied be kept absolutely clean, free and clear of equine disjecta, or refuse of any kind whatsoever, under the supervision of the President of the Borough; such permission to continue only during the pleasure of the Board of Aldermen. "Which was adopted."

Now it's up to the President of the Borough of Manhattan.

ORIGINAL ARTICLES.

THE RESTRAINT OF ANIMALS BY AID OF CHLORAL HYDRATE.

By F. F. BROWN, D. V. S., Kansas City, Mo.

A paper read before the annual meeting of the Missouri Valley Veterinary Association
at Omaha, Nebraska, 1908.

The restraint of animals is one of the important problems associated with the practice of medicine, and one that daily calls for solution at the hands of the busy practitioner.

Restraint is the preliminary step to nearly all surgical operations and the success of surgical undertakings is largely measured by the effectiveness with which the animal is confined. Imperfect restraint not only detracts from the skillful use of the knife, but increases the opportunity for infection of the surgical field, so that the unfortunate terminations of many surgical cases, many times can be traced to not properly limiting the struggles of the animal.

Confinement of animals is made with three objects in view:

First—To restrain the animal that it may not do itself bodily injury or harm.

Second—To limit the jeopardy of life and limb of operator and assistants.

Third—The primary object of restraint—to secure the animal in such a manner that the operation may be carefully, effectively and scientifically performed.

Fear of injury or pain prompts resistance on the part of animals, which resistance must be anticipated by the surgeon and met with measures of confinement commensurate with the operation in hand. If the medical attention or operation is one of a minor nature, oftentimes efforts directed towards inspiring confidence on the part of the animal in the one in charge will

suffice. Kindness and firmness, combined with patience, go a long way in subjugating the will of the brute world to that of man.

The peculiar disposition of certain animals or nature of certain operations renders moral suasion wholly impracticable in some instances, and force is frequently an added agency in the problem of control.

As man becomes familiar with the habits and temperaments of animals he learns to take advantage of their lesser intelligence and by means of little devices is enabled to place at great disadvantage his many times more powerful associate.

Even when the horse is cast by means of harness or placed upon a table especially devised for that purpose, the restraint is at best an imperfect one, and does not give the surgeon the opportunity to display the highest type of surgical skill.

The resistance of animals may be further limited by resorting to those methods that will interfere with the transmission of painful impulses, viz., intensely cold applications, compression and medicinal agents, which latter may be inserted about the sensory nerve endings or along the lines of the sensory nerve trunk.

Those measures that will make less painful a surgical operation are to be highly commended, and it should be the aim and determination of the veterinarian to aspire to the same degree of proficiency in this respect as the surgeon of the human kind—the avoidance at all times of needless pain in the lower animals.

Local anæsthesia serves its purpose when properly applied in many instances and should come into more general use. In certain selected cases when properly applied its results are perfect. The field of veterinary surgery is too broad, however, to be entirely met by local anæsthesia, as there are cases that arise in which the operation would prove too painful or too extensive to admit of any method short of anæsthesia in its general sense.

The selection of a suitable agent that will safely reduce the animal to a state of total unconsciousness is a puzzling question. Of the many agents that may be employed nearly all have some objectionable quality. These objections range all the way from the ineffective, delirium-producing kind to those that intoxicate and kill by respiratory or cardiac arrest.

Chloral hydrate has for years held a high place as a reliable hypnotic. Perhaps no one agent is as generally used for holding in abeyance nervous and painful conditions. This it accomplishes so frequently when the patient is at all susceptible to agents of this class that it is rare for some other drug to supplant it and give better results when it fails on a given case.

As usually employed it is given *per orem*, but may be given *per rectum* intravenously and intraperitoneally. Its use subcutaneously or intratracheally is not permissible on account of its irritating properties, and if it be diluted to a point to overcome this, the bulk of the injection would be too great to be practical.

When one or two ounces are given either in drench or capsule *per orem* the patient in the course of an hour usually exhibits extreme dullness or occasionally passes into a state of anæsthesia. Its action when given in this manner is uncertain, which is perhaps largely due to becoming mixed with quantities of ingesta and thus delaying absorption. The majority of surgical cases call for a more prompt and certain action than usually can be obtained from oral administration.

Rectal injections encounter the difficulty of the animal's making repeated and persistent attempts to evacuate the bowel, which is prompted by the local irritation of the agent, and for this reason this method is not ordinarily satisfactory.

The intravenous injection of chloral hydrate is attended by very prompt results. In a very few seconds after one to one and one-half ounces in solution are injected in this manner, the animal becomes completely unconscious.

This latter is the method resorted to at the Kansas City Veterinary College on dissecting subjects and cases for surgical practice. In the latter instance animals are kept anæsthetized

from three to five hours, and as the effect of the chloral passes off it is occasionally found necessary to supplement it with inhalations of chloroform.

The writer has never had the opportunity to observe the after-effect on a great number of patients in which chloral was employed in this manner, but from what can be learned (and the investigation has extended to about fifteen cases) it would seem that no harmful effect follows so far as injury to the blood or intima of the vessels is concerned.

The chief danger lies in the possibility of unconsciously permitting the needle to be withdrawn from the vein and discharge some of the solution into the tissues. Following such an accident abscesses are apt to occur, together with phlebitis, infection and death of the patient.

The attention of the veterinary profession rather recently has been attracted to the feasibility of producing anæsthesia in animals with hydrated chloral by injecting a solution of the same into the peritoneal cavity. This method, while practiced by the human surgeon in certain isolated cases, is considered entirely too dangerous a procedure for general practice on account of the irritating properties of the drug, and has been abandoned. In the horse, from one and one-half to two ounces is used, which is dissolved in from ten to fifteen times as much distilled water and injected at body temperature, preferably through the left flank. The animal should be as carefully prepared previous to the operation as it would have been were any other general anæsthetic to be administered, with the added care that everything used pertaining to the injection is first sterilized and rendered free from germ life.

In a few minutes following the introduction of the agent the animal will show slight restlessness, which is quickly followed by stupor, inability to maintain its equilibrium, and in from five to ten minutes goes to the ground where it quickly lapses into a state of anæsthesia, oftentimes so complete that the most serious operation may be undertaken without exciting any of the reflexes.

The period of anæsthesia usually continues a sufficient length of time for the most extensive major operation to be performed, at the end of which time, ordinarily from one to two hours, the animal gradually revives and regains its feet.

When the agent employed is one of superior quality and the injection made in conformity with modern approved surgical ideas, the behavior of the patient is very much as above noted, with no serious sequela so far as the use of chloral is concerned.

There are, however, certain disappointments and after-effects associated with the use of this drug that are worthy of mention and they will be taken up and discussed in order.

First—Intoxication and consequent death of the patient. This sequel from a danger viewpoint might at first be regarded as the most prominent one, but experience does not appear to warrant this conclusion. On the contrary, the data furnished on over one hundred cases in which the intraperitoneal method was practiced does not record the loss of a single subject from intoxication. The conclusions reached, and so often taught, as to the dangers of chloral as an anæsthetic appear to be based largely on experiences in human practice, which is no criterion from which to judge its action on lower animals.

Second—Failure to obtain the physiological action of the drug when given in full dosage. If no action or very little follows the injection of the agent there is practically but one conclusion to be reached, viz., that the trocar entered the large bowel and permitted the fluid to be thrown into its interior where it became so mixed with the contents as to make slow its absorption.

The writer has had the privilege of observing the behavior of a horse within the last few days in which two ounces diluted with twenty ounces of water were injected per rectum, the bowel contents first having been carefully removed by hand. No discernible effect whatever was produced by the drug. On the following day the same amount was administered to the same animal intraperitoneally, with the result that the animal was "down and out" in nine minutes and remained perfectly

anæsthetized for a period of nearly two hours. During the period frequent tests were made on many parts of the body to determine the state of the sensory apparatus which was met by no response whatever.

Third—The opportunity to inject the preparation into the muscular tissues or between them and the peritoneum, thus confining the fluid and making conditions favorable for the development of peritonitis. The trocar should be carefully passed until resistance ceases and due allowance made for the condition of the animal and thickness of the abdominal muscles. Bowel odors emanating from the canula point to the fact that the bowel has been punctured, while the resistance offered to blowing through the canula give the hint that the full abdominal wall has not been penetrated.

Fourth—Colicky pains following in the course of from three to five hours. This is perhaps the most frequent sequel to the use of hydrated chloral in the above manner.

Apparently the drug arrests the digestive processes, for it is nothing uncommon for tympany to follow its use. As a rule, this condition is not serious, and I have yet to hear of a loss from colic, although I have known of cases wherein it was necessary to resort to the trocar.

A more strict attention to properly preparing the animal for the anæsthetic will diminish the number of colics following its use, as well as lessen their intensity when they occur.

Fifth and last—Peritonitis.

On account of the well-known irritating properties of chloral hydrate this would be the most likely sequel attending its use. The average physician is loath to believe that a ten per cent. solution of this drug can be injected into the peritoneal cavity of animals with impunity, but there are practitioners who have used it in this manner on many cases without any apparent symptoms of peritonitis.

Not all veterinarians have been so fortunate. Recently I have the report where one practitioner employed it on three separate cases with a loss from peritonitis of one hundred per cent.

The writer has observed an elevation of from three to four degrees of temperature with corresponding acceleration of pulse and respiration in the course of six or seven hours following its use, but in another twelve hours these disturbances had subsided without medical attention and the animal appeared none the worse for its experience.

The references to no losses at the hands of one practitioner and one hundred per cent. at the hands of another represent the two extremes and the problem is, how are we to harmonize the two reports?

The reports indicate that the quantity used, percentage of dilution and care exercised in administering were approximately the same. Can we look to the chloral hydrate itself as the offending agent? After careful investigation, I am very much inclined to the opinion that herein lies the secret and that while there may be an occasional case of peritonitis develop, yet it appears possible to reduce the losses to a very small per cent.

Chloral hydrate at best is an unstable agent. It undergoes chemical change in the presence of alkalis or organic substances. Likewise it is affected by sunlight, exposure to air and high temperatures, and is especially prone to decompose if permitted to liquefy through exposure or if kept in solution. Many of these alterations result in the formation of substances more irritating than the original drug in its highest state of purity.

It would not be unreasonable to imagine a practitioner, desiring to give chloral a trial via the peritoneal cavity, procuring an article that possibly with seal broken had stood on the druggist's or his own shelf for months, with his experience resulting in the sheerest disappointment.

Until this point has been more thoroughly canvassed by one better versed in organic chemistry than the writer he has this to advise: Use for peritoneal injection hydrated chloral of highest quality only. Procure if possible in two-ounce bottle so as to use fresh each time. If kept in a cool place away from sunlight and administered under the best teachings re-

garding antiseptic precautions to animals properly prepared, the writer believes that the mortalities will largely disappear, and that the use of chloral hydrate intraperitoneally, in major surgical operations, on account of the prompt and perfect control it gives will be regarded as a most safe and sane method of restraining animals.

SOLOMON had 40,000 stalls for horses for his chariots and 12,000 horsemen.

TO THE ODOR BORN.—A Chicago man who was a member of the committee on reception on the occasion of the visit of Prince Albert of Belgium a year or two ago, tells of his highness' inspection of the stockyards.

The prince received every possible attention and was much interested in the magnitude of the industry and the various processes for disposing of the thousands of cattle and hogs slaughtered every day:

Just before he left he turned to the intelligent young man who had been told off to act as his guide and asked:

"Do you never suffer any inconvenience from the odor here?"

"What odor, your highness?" was the naïve response of the young man.—(*Philadelphia Ledger*.)

LICENSED TO PRACTICE IN NEW JERSEY.—The following gentlemen successfully passed the June examinations of the State Board of Veterinary Medical Examiners of New Jersey, have been adjudged duly qualified, and licensed to practice veterinary medicine in that state:

John J. Pardue, V.M.D. (U. of P.), Newark, N. J.

James A. McCloskey, V.M.D. (U. of P.), Chestnut Hill, Philadelphia, Pa.

Edward A. Parker, Jr., V.M.D. (U. of P.), Atlantic City, N. J.

Winfield B. Hobson, V.M.D. (U. of P.), Paterson, N. J.

Alex. M. Mecray, V.M.D. (U. of P.), Moorestown, N. J.

Harold E. Stearns, D.V.S. (N. Y. U.), Arlington, N. J.

William A. Fitzpatrick, M.D.C. (C. V. C.), Mount Holly, N. J.

John H. Bakelaar, M.D.C. (C. V. C.), Passaic, N. J.

Frank T. Burnett, M.D.C. (C. V. C.), Paterson, N. J.

AWAY WITH ANIMAL TUBERCULOSIS.*

That Scourge, Viewed from the Standpoint of the Meat Packer, Stock Raiser and General Public, Must Be Stamped Out.

By D. ARTHUR HUGHES, Ph. D., D. V. M., Inspector, Subsistence Dept.,
U. S. Army, Chicago.

Those of us who read our daily papers, and our live-stock or agricultural journals, either casually or carefully, will remember very well the bitter quarrel last summer between the meat packers of the country and the live stock commission men. The contest between the two lasted about eight weeks growing hotter as the weeks rolled by, and having the economic effect on the country of scarcity of beef products and soaring prices. The commission men needed the packers as purchasers, especially during that part of the year—the summer season, the time for cattle sales. On the other hand the packers could not be forced to buy on shippers' and commission men's terms, when those terms required the packers to take all risks. Throughout the contest the commission men held that the packers were employing trickery to lessen prices in order that they might buy any quantity of cattle at their own figure, at such a time, later, when farmer and commission man would be forced to sell. The story looked plausible and its plausibility made an excellent blind for their clients—the farmer and shipper. Usually, any argument against the packers has been swallowed by the country without consideration. This time the packers had truth and justice on their side beyond any equivocation. They stated that their object was to stop condemnation losses from tuberculosis and make the careless farmers see the necessity for clearing up their premises. The contest had the striking effect of bringing to the attention of the country at large the losses the packers were sustaining from animal tuberculosis, the rapid increase of the infection, which necessitated that strong measures be taken to halt its progress, or de-

*An address delivered before the Illinois State Veterinary Medical Association.

crease the losses caused by it; and the unsanitary condition in which many localities must be, from which come load after load of animals infected with tuberculosis, to cause the unwary purchaser his heavy losses.

We may well, therefore, in this address, have the fourfold purpose of inquiring: First, the cost of animal tuberculosis to the packer; second, the cost of animal tuberculosis to the stock raiser; third, the cost of animal tuberculosis to the general public or meat consumer; fourth, what suggestions on sanitary measures can be offered in this aggravating situation.

I.—The cost of animal tuberculosis to the meat packer.

If we pay no attention to the animals killed on the farm, we may divide all other domestic animals killed for food in the country into those slaughtered under the United States Inspection and those not. According to the last obtainable annual report of the Bureau of Animal Industry, that for 1905, detailing the United States Inspections for the last year under the old law,* there were 16,956 whole carcasses and 647 parts of carcasses of cattle condemned for tuberculosis, and 64,919 whole carcasses and 142,105 parts of carcasses of swine condemned for the same disease. This is a record against tuberculosis of something like 90 per cent. of all condemnations, and the total loss has been estimated by the packing houses under official supervision to be in the neighborhood of three million dollars annually.

Among the many thousands of men in government inspected houses, of all grades of intellect, there were always many who realized that these losses were unfair to the packers. Among these were the cattle or hog buyers who daily bought fat cattle or hogs for their houses, which were only too quickly condemned for tuberculosis at slaughter. These men, no doubt, keenly felt the injustice when, at the International Live Stock Show, up till recently, before the time it was decided to give prizes to cattle only after the tuberculin test, they bought seemingly prime cattle for the packers only to have them found shockingly tuberculous

* Twenty-second Annual Report B. A. I., p. 26.

at slaughter. These thinking men, also, are the ones who have noted the rapid increase in tuberculosis in cattle and hogs, as shown in condemnation after slaughter or purchase. Dr. A. D. Melvin has informed us† that the percentage of tuberculosis found in cattle where government inspection prevails, has risen from one-fourth of one per cent. in 1905 to one-half of one per cent. in 1907; or, the amount found has doubled. In hogs the amount found is far worse—about four times as much. Inasmuch as the custom has been to hoodwink the unwary packers by selling them all these diseased animals, is there any wonder that they cry out at the injustice? In other words, with the increase of tuberculosis among their purchases comes a greater and greater condemnation loss. The ever-increasing tuberculosis meant an ever-increasing loss, by condemnation for grease or offal of either the whole or part of each carcass found infected. The bill was bound to increase if they did not make a stand against the disease. They stood for a “square deal.”

II.—The cost of animal tuberculosis to the stock raiser.

The results of post-mortem inspection in the houses under government control and the cost of tuberculosis to the packers are an index to what is occurring on the farms from which such infected animals come. There can be no reasonable dispute of the statement that the bill for tuberculosis against the packers should be the bill for tuberculosis against the stock raisers, whomsoever they may be. We may take the statement for granted that this bill belongs to them, and that eventually they will be forced to foot it.

However, the figures emanating from the reports of inspection in official abattoirs really represent a small part of the cost of animal tuberculosis to the stock raiser. Under the new federal law, with the extension of government inspection to scores of smaller houses, we have been enabled to further study how widespread the disease is, as evinced by the number of carcasses found

†American Veterinary Review, November, 1907, pp. 206-207.

tuberculous during the inspections. Furthermore, the passage of the new federal law has stimulated the passage of state meat inspection laws and municipal regulations. There are thousands of houses doing only a state business, or a merely municipal business, the records of which do not enter into our computation of the extent of tuberculosis among farm animals. A compilation of these facts would add more weight to the argument against tuberculosis. The federal reports show that about thirty millions of cattle and hogs are killed under federal supervision per annum, a list of which is, of course, greatly increased under the new law. Yet this is only part of the total slaughter of animals each year in the United States. The report of the Secretary of Agriculture for 1906‡ shows that we have this year (1907) in the United States 20,968,265 milch cows and 51,565,733 other cattle. In addition to the number of animals killed in the government-inspected abattoirs must be added the millions killed in the state and city abattoirs and in the country. The expert would likely find as much tuberculosis in them as in the animals slaughtered under the federal eye. The evidence in favor of this view is, that officials of the various states, trying cattle with tuberculin, have, in report of tests sent in to Washington, from whence they obtained the tuberculin for the tests, attested that from 2.79 to 19.69 of reacting cows are tuberculous and are slaughtered as such.

Notwithstanding the fact that the bill the stock-raiser is making for himself for tuberculous meats is enormous, to him must be charged the bill for milk infected with the bacillus tuberculosis. Through the copartnership of the veterinary and human medical professions in a campaign of education, the people are learning the dangers lurking in contaminated milk. Milk becomes tuberculous through the agency of the cow, from the tuberculous udder and from the feces. In the state of Illinois we have no law requiring the Pasteurization of skimmed milk to be sold or distributed pro rata to farmers by creameries, and

‡ P. 65.

these farmers get this tuberculous concoction to feed to their hogs. Does not this need rectifying, as has been done in Iowa and Minnesota? Tuberculous milk can infect hogs; why, then, should men drink it? Even if tuberculous milk cannot infect men, except in rare cases, as the Koch school alleges, do we want to use it? I am one to help give a verdict on Koch that his case is not proven. *Tabes mesenterica*, or tuberculosis of intestinal origin in children is undoubtedly increasing, as the specialists in pediatrics and dietetics tell us. How many tuberculous epidemics among children are due to the ingestion of tuberculous milk, has not been studied. The danger is certainly great. In short, animal tuberculosis is perilous to man and beast through ingestion of milk as well as meat. It is too costly a disease, therefore, to be harbored by any farmer.

Moreover, the unobtrusiveness, the insidiousness and continuousness of the disease in animals constitutes its greatest danger, besides being, though unknown usually to him, its greatest cost to the farmer. The fact that an animal reveals no symptoms of tuberculosis in life, and at death is fat, makes the danger from the flesh none the less when the lesions are extensive and generalized. Neither do the lack of symptoms, nor the fatness, alter the fact that the animal may be a source of infection through the feces. If it should come to pass that the stock raiser has to foot the bill for condemnations, the expense to him will be sure to continue to increase, unless he eradicates the disease from his premises. Unless the state, or the United States, intervenes to eradicate the disease, which it is their plain duty to do, the stock raiser will remain incredulous that he has the disease in his herds, or he will hide his knowledge of the disease, for fear of losses from it when the sale of his animals takes place. Certainly the responsibility for animal tuberculosis rests with the producer; but appraisalment of his animals will have to be made and indemnity given him before the stock raiser will agree to have tuberculosis eradicated.

III.—The cost of animal tuberculosis to the general public or meat consumers.

Gentlemen! We are part of the great general public of meat consumers interested in animal tuberculosis in an unusual degree. We are neither raisers nor buyers of live stock. Yet the presence of the disease in animals and its rapid increase has more meaning to us than money. The question is not one of filthy lucre, of profit and loss to us. Animal tuberculosis to us means the possibility of infection with the worst of infections. To us the cost of animal tuberculosis is one of cost to the public health. We are, or should be, as veterinarians, persons interested, by virtue of our studies in the laboratory, our observations in clinical practice, and in the holding of post-mortem, fully alive to the dangers of the disease to the public health.

We have certain standards for the inspection of meats and meat food products, furnished by the wisdom of the federal government. These have been adopted, in the main, by the several states, whenever they have chosen to have meat inspection laws of their own, covering exclusively meat going into state trade. For example, the state of Pennsylvania, and perhaps the state of Iowa, have followed fairly well the United States standards in the administration of the new state meat inspection laws. On the other hand, though milk comes close to meat as a necessary food product, and though untold millions upon millions of gallons are sold, where are the standards for milk inspection similar to those for meat inspection? Look at the variety of opinions on milk as a source of infection, the lack of state and interstate supervision of the milk trade, and that in all dairy products. When one remembers the experiments of Mohler recently, in which he injected separator slime into guinea pigs, with the result that they became rapidly tuberculous; and when one remembers the common infectiousness of skim milk and buttermilk, one's flesh begins to creep at the thought of the danger from this source of infection.

Again, there is a vast trade in the flesh of animals, other than that proceeding from official abattoirs and bearing the label of approval of the United States Government; that from animals killed on the country side without a semblance of inspection; that

in small towns where there are no inspection ordinances; that in cities where there is no expert municipal meat inspection; that in territories or states where no laws on the subject prevail; that from animals killed, nobody knows how nor where, brought to town and peddled from wagons, or that from animals driven in on the country roads or coming in by local trains. The cities of Europe, Paris and Berlin, for instance, watch closely all such avenues of the municipal meat trade. How much meat carrying tuberculous infection is sold coming from these particular sources? The movement of the meat packers of the country to prevent sales to them of tuberculous animals, except at low prices, would come to nought, as far as controlling tuberculosis is concerned, unless there is a general and thorough-going movement for the eradication of the disease, evidenced by each state giving sufficient power to the state veterinary sanitary officers, of a kind agreed upon in a national conference of the live stock sanitary boards, and by the appropriation of sufficient funds by Congress to enable the Bureau of Animal Industry to carry out its prerogatives regarding this and all other communicable diseases of animals, granted in the fundamental act of 1884.

IV.—Suggestions on sanitary measures against animal tuberculosis.

Pending the time when the movement shall have gained enough strength for the eradication of the disease, we may consider measures for the control of this dire infection.

These may be:

1. An act to prevent the further introduction of tuberculosis into the state of Illinois by means of breeding stock and feeders. This should be similar to that in force in Pennsylvania and similar to the United States regulation which forbids bovine animals being sent here unless they have been tested with tuberculin.
2. An act to prevent the spread of tuberculosis in human beings and animals, through the consumption of contaminated milk, by requiring the Pasteurization by creameries of skimmed milk before it can be offered for sale or distributed pro rata to farmers.

3. An act inaugurating a system of meat inspection for the state similar to that in force in Pennsylvania, with paid inspectors giving all their time to the work. A casual study of the present law makes me believe it insufficient to meet the state's needs. As I understand it the law, as it is administered at present, is made operative chiefly in cases of glanders, Texas fever and scabies. As a live-stock sanitary measure it is no doubt admirable as far as it goes. It could well be supplemented by a law similar to the meat inspection law of the state of Pennsylvania.

4. Prizes at the state fair and all county fairs should be given only to such bovine animals as can pass the tuberculin test.

5. A state live-stock sanitary board laboratory should be established as soon as practicable, best of all at some point at the centre of the live-stock industry of the state, and having connected with it an experiment farm. The object should be to investigate infectious and other diseases of animals occurring in the state, their detection, prevention and control. One of the duties of such a laboratory would be to manufacture tuberculin and other sera for the detection of disease.

The state of Wisconsin has adopted a course which the adjoining state of Illinois can well afford to follow. No other state in the central west, perhaps, has done more against tuberculosis. If Illinois, with Wisconsin and the adjacent states, would take concerted action to control the disease, that would be a great boon.

Under the federal law which founded the Bureau of Animal Industry, the Department of Agriculture has sufficient power to stamp out tuberculosis. The time seems opportune that a conference of the departments of agriculture of the several states be held in conjunction with the officers of the Department of Agriculture of the United States, to consider ways and means of tuberculosis eradication, similar to the conference held in the south on tick eradication; that omissions or defects of the sanitary laws of the states, hindering tuberculosis eradication, be

brought out; that studies be made of the places worst infected with tuberculosis; that quarantine be set up against the disease; that money be appropriated for tuberculosis eradication as has been done for tick eradication in the south.

The propaganda against animal tuberculosis must be one of education. I have said enough on the question to uncover to you its vastness. The main point, though, that I want to bring out is not so much that tuberculosis eradication is a vast work; but that it is *our* work. We may well almost stagger at the thought of so great an undertaking. Still, sound sanitary science requires us to stick to the work, when we have well begun, until the disease is eradicated.

“Stick to your work and be wise,
Certain of sword or pen,
For ye are neither children nor gods,
But men in a world of men.”

VETERINARY education in Scotland has taken a distinct step forward, thanks to the generosity of a former graduate of the Dick College, Mr. A. I. McCallum, J.P., M.R.C.V.S., who by his magnificent gift of £15,000 has endowed a chair of Pathology and Bacteriology in that school. The chair having been duly advertised, the board at their recent meeting appointed as the professor, Dr. Gerald Leighton, F.R.S.E., who has held the position of lecturer on the subjects in the college for the past six years.—(*Live Stock Journal, England.*)

A USURER.—A story is told by a lawyer of Little Rock, Ark., about the sad case of a native of that town who sought justice by reason of the theft of a horse belonging to him. As, however, the man who took the animal returned it to the owner, the lawyer advised the aggrieved one to let the matter drop.

“Can’t I have him arrested for usury, then?” demanded the man, indignantly.

“What on earth do you mean?”

“Doggone it, mister, he used the hoss, didn’t he? Yes, sir, he used him mighty hard by the looks of him.”—(*Philadelphia Ledger.*)

OBSERVATIONS ON ANTHRAX AND SYMPTOMATIC ANTHRAX.

By WHITFIELD GRAY, V. S., Newton, N. J.

A paper presented to the Veterinary Medical Association of New Jersey at its semi-annual meeting at Newark, July 9-10, 1908.

The fact of the recent occurrence in Sussex County of this state of an outbreak of anthrax and also of the death of quite a large number of young cattle from symptomatic anthrax with both of which invasions of disease I was associated throughout their history, was the cause, I presume, of a number of requests by members of this association that I prepare a paper for presentation at this time. For that reason, therefore, our esteemed president has selected for my subject the consideration of the allied condition of anthrax and symptomatic anthrax commonly known as black leg. It is not my intention to offer a contribution to veterinary medical literature looking toward the elucidation of this formidable scourge nor by any means an exhaustive paper in these diseases of the longest known ancient history and of which particular disease we are all more or less familiar. Although this form of disease has long since been classified among the historic pestilences, I think it can be safely stated that not all medical men have had personal observation of it, and while it is true that it has been most widely disseminated and present throughout the whole world and in its geographical area it has been found in all latitudes—in the Siberian and Lapland and even Polar regions to the temperate tropics of the West Indies.

One instance may here be mentioned of the ravages of anthrax, and which is credited with being authentic, is that of its appearance in Russia in 1864 when there died of horses and cattle 72,000, while again in one of the districts of central Europe from 1867 to 1870 there perished more than 57,000 horses, cows and sheep, together with 528 human beings; nor have wild animals escaped, for it has been proved that buffalo, deer and rein

deer have fallen, and even the elephant has not been spared. But it is not with the more remote localities that we are especially concerned, and the objective point to-day deals largely with local outbreaks, referred to already. So far as I can learn, the disease in New Jersey has appeared only in certain sections, so that to the ordinary practitioner anthrax conditions are so uncommon that the disease really has often to be rediscovered. My first acquaintance with this malady was during the winter of 1906 when 11 cows and 2 horses died during a period of 14 days and on one farm. The information reported to me on my first visit was that several cows had died, five in number, and from a variety of causes, the first was found in the morning in a doubled up condition in the stanchion, death in this case being attributed by the attendants to choking. On the second day following another cow was found dead and in this case accidents attending the parturient period was given as a cause. On the third day following the second death the cows were turned into the yard and a cow was noticed to be acting in a nervous manner and she was placed in a large box in the barn, as it was also thought that in this case the parturient period was about completed. After being placed in the box the cow made several attempts at lying down, then many evolutions of the stall, then a variety of butting and rushing together with bellowing spells, and finally falling in violent paryoxisms lasting several minutes. All this time there was copious discharge of saliva, together with some blood-tinged froth from the nose and excretory avenues. This condition continued for not longer, I was told, than 35 to 40 minutes, when death took place. The day following another cow was found dead in the stanchion in the morning and preparations were made for removal of the body by dragging of the skinned carcass across a field, and this task being completed and the team of horses was returning to the farm barn when one of the horses began to show a disinclination to progress evidently much as a horse with approaching or present azaturia will evince. Very soon he ceased to progress further and fell and remained in this partially paralyzed

condition until I arrived. This was about 11 a. m., and the symptoms presented in the case of the horse, which, by the way, was fat and about nine years old, were not at all dissimilar or unlike those that I seen in the last stages of a case of cerebrospinal meningitis. There was intense excitability, constant movement of the legs and head and violent trembling with greatly labored breathing and somewhat bloody appearing expulsions. At this period the temperature registered 105.4 F. The excitement rather abated and finally there was pronounced starring and coma with falling temperature even sub-normal and death at about 6.45 p. m.

The remaining cows affected died during the following six days all of the number exhibiting the peculiar intensely excitable phenomenon characteristic of acute anthrax. The second horse was taken sick about the middle of the period during the run of the disease and lived about eight days, if my notes are correct. The symptoms in this case were decidedly mild in the start, in fact, the only apparent evidence of a departure from that of a normal state being colicky pain at intervals of each hour for the first day and a half and a steady temperature ranging from 104 to 105.8. The next period was more pain and a temperature to 106 and 106.2, with a tendency toward partial paralysis of the intestines; in fact, all of the internal viscera. During the following days the symptoms described increased with stationary temperature, and, as the paralysis was progressive, it also became more pronounced until there was a completeness of this feature with the ushering in of coma and death in the eighth day. I might here add that this case was, and one cow was, the only ones where treatment was offered. In the horse it proved only palliative, while in the cow there was recovery, this, however, was only a very mild case, in fact, it was a grave question, in my mind if anthrax really existed or if it might not have been confounded with a condition of retained foetal material.

I would also add at this time that in each one of the cows there was almost completion of the parturient period or immediately thereafter.

That ended the death list of the animals on this farm, as preventative inoculation was employed, each animal of the remaining 32 receiving subcutaneous injection and again a second in ten days. It might also be opportune to state that the only symptoms presented following the introduction of the vaccine virus was an accelerated breathing and a degree of temperature during the following day after the initial injection or vaccination.

My other experience with the anthrax variety was during the past winter and relates to a particularly active appearance of symptomatic anthrax or what is more popularly known as black-leg. During the month of January, in a herd of 24 young cattle and four cows, there died two yearling heifers; in February two and in March seven, the last three dying a day apart. In all eleven deaths. The farm also contained 24 sheep, 2 horses and 52 angora goats and 4 young caloes. In an adjoining farm there was reported to me seven deaths of young cattle in a herd of 22 animals, in another two deaths and three or four other farms one each. In all of these places and in every instance death was attributed by owners and observers to the partaking by these cattle of laurel leaves which grow in very great abundance in this mountainous region. On the remaining animals in this community preventive vaccination has been employed and no deaths have been reported as yet. My inquiries into the subject of the existence and presence of black-leg in this very high and mountainous region brings out the fact that it has existed there, as nearly as I can trace, for fifteen years, more or less severe, sometimes only taking two in a herd, other times one and again, in one instance, it was reported to me by a reliable man, that during one winter 38 out of 40 died in one barn. In fact, so ravaging has been the devastation of this disease that the raising of young stock has been abandoned. Believing that preventive vaccination is the only efficacious means known to us, it can easily be seen that the repeated use of vaccine will have to be embraced for

some seasons, at least. I found from inquiry that these deaths sometimes occurred in winter, other seasons in summer, but almost invariably during the extremes in the season's temperatures. I saw only one living subject of this disease and the symptoms were in general, I was told, of the other cases. This was first a loss of appetite, dullness and general debility and a temperature of 107 degrees at the time of my visit, and the disease had then been present three days. There was a marked stiffness of the right front shoulder together with a decided swelling of that part. Death followed the next day, which was the fourth day. There was difficult breathing, occasional attacks of pain and increasing weakness preceding death, and also increasing size of the tumor or swelling on the shoulder which responded with a crackling noise when pressed with the hand.

I made a post-mortem examination of this and four of the other cases of the more recent date of death and where decomposition was not too pronounced. In all the cases I noticed the same general similarity of pathological lesions. In cutting into the bodies and into the tissues under the skin it was found to be infiltrated with blood and yellowish, jelly-like material and gas bubbles. The muscular tissue beneath the swelling was brownish-black and shading into dark red and yellow. In the abdominal and thoracic cavities there was an accumulation of blood stained fluid together with patches on the walls of these anatomical regions, with blood spots or ecchymoses in the intestinal coverings and in the lungs and heart.

To confirm the diagnosis I took sufficient and repeated specimens and forwarded them to the Laboratory of Hygiene at Trenton, and after due research at that institution I was informed that the bacteriological examination said black-leg. The matter was taken up by the State Board of Health with an order that I vaccinate all exposed animals.

Returning to the cases of anthrax and to the post-mortem phases which is done for differential comparison, I will say that I made an examination of several of the cows and also of the horses and it will be remembered that they all died in a rather

acute form. First the blood was dark, thick, tarry and unclotted, much as it is after blood letting during life. The entire venous system was engorged. The spleen was enlarged two, three and even four times its natural size. It was pulpy and softened and of a dark tarry color. The intestinal walls were more or less infiltrated with a sero-hemorrhagic exudation. Large and small collections of blood and effusion of blood colored liquid was present about the heart and lungs. I observed no intestinal or other cabuncles.

The pathological changes that anthrax had caused in the horses differed especially from the cattle in that the jelly-like yellow and sero-hemorrhagic infiltrations were encountered in nearly every portion of the body where there was loose connective tissue, and especially along the course of the great blood vessels, in the mediastinum, peritoneum and about the kidneys. I must not forget to state that although these deaths occurred during March and when the thermometer was hovering almost zero, certainly below freezing, there was especially in the cows very marked and very rapid decomposition, and from what I learned in the post-mortem examinations I was convinced that a gangrenous condition had preceded death, particularly in the horses in the lymphatic structures. I obtained a variety of specimens at the Laboratory of Hygiene for observation, and Mr. Fitz Randolph, the director, also viewed some of the bodies with me. His careful researches in the laboratory and inoculations of smaller animals produced positive results and confirmed the diagnosis of anthrax. Perhaps one of the most interesting features of this outbreak of anthrax on this farm was the origin and from whence came the bacterial visitor. The farm is quite isolated, in fact, away from the public road. No contagious disease of this nature had ever been present, in fact, no anthrax had ever been recorded in northern New Jersey's history. No animals had come on the farm for years, all had been raised there. The only explanation I could offer for the presence of anthrax was that a short time prior a package of meat scrap had been secured for

the chickens and fed to them. It was said that several of them had died. At any rate, one sick hen, a favorite, was placed in the cow and horse stable where it was warmer and allowed to walk about there for three or four days until she died. This was the only solution I could offer for the introduction of the infection.

To conclude my remarks I want to say that the two practical striking features to me and that which particularly impressed me from an observant clinical standpoint was the comparative relationship of these diseases, and finally after all the apparent fact that the soil and local conditions are among the chief factors in the development of these forms of bacterial life and which is hardly to be doubted.

CLEMENT STEPHENSON MADE A DOCTOR OF SCIENCE.—The honorary degree of Doctor of Science has been conferred by Durham University on Mr. Clement Stephenson, F.R.C.V.S., Sandyford Villa, Newcastle-on-Tyne. Sir Isambard Owen, introducing Mr. Clement Stephenson for the degree, said that some might remember the dismay which some forty years ago greeted the daily repeated news of ravage made among the herds of this country by certain virulent epidemic diseases imported from abroad. That England was saved in those days from ruinous loss was due to a band of earnest scientific workers who had been pursuing the then little cultivated science of veterinary pathology, and the measures which they induced the Government of England to take. He presented one of that memorable band to whose efforts, in the office of veterinary examiner for Newcastle and Northumberland, the preservation of the North from serious disaster was at that time largely due. He followed up in successive years his fruitful line of research, contributing at a later date by his evidence before departmental committees in 1888 and 1893 in no small measure to rid us of two of the most destructive pests that had made their way into our country. As one of the most distinguished living authorities on veterinary subjects, and as a man who had rendered signal service, he might be content to present Mr. Clement Stephenson, but it must not be forgotten how prominent a part he took in the establishment of an important chair in this university—the chair of comparative pathology and bacteriology.—(*Live Stock Journal, England.*)

CHANGES IN THE BLOOD OF PARASITE-INFESTED SHEEP ON AN INNUTRITIOUS DIET.

By WARD GILTNER, D. V. M., M. S., Auburn, Ala.

The effects of parasitic infestation on the blood of man have been studied by different hematologists. Little is known, however, about the blood of sheep either in their normal condition or when affected by any of the numerous parasites that attack this valuable domesticated animal. The following is a review of the data on the blood of normal sheep as compiled by Burnett: "The red corpuscles of sheep's blood are smaller than those of the cow. Welcker gives the average diameter as 5 microns. Bethe gives the diameter as 3.9 microns to 9.5 microns. The number per cubic millimeter is 9,133,000 according to Bethe, and 12,090,000 according to Cohnstein. Muntz gives the specific gravity of the blood of sheep as 1.038. Bethe gives the leucocytes as 4,140 per cmm. as normal for sheep. The varieties of leucocytes, according to Hirshfield, are: (1) eosinophiles resembling those of man, (2) neutrophiles with very fine and numerous granules, (3) mast cells and (4) lymphocytes. The numbers of the different varieties have not been determined."

During the months of December, 1907, and January and February, 1908, I had the opportunity of examining the blood of seven sheep affected more or less extensively with the lesions produced by *Oesophagostoma columbianum* and in most of the cases there were present a few, never very many, stomach worms (*Haemonchus contortus*). I am greatly indebted to Dan T. Gray, Professor of Animal Industry, and his assistant, Mr. Ridgeway, for supplying me with these subjects and data relating to their previous treatment in addition to the results of their efforts to prevent losses in the station flock. All the sheep that came under my observation died within a day after the blood examination was made. The larval forms of the oesoph. columbianum

were demonstrated to me under the microscope by Mr. H. W. Graybill, of the zoological division B. A. I. Those interested in the parasites of sheep would do well to read B. A. I. Circular No. 932, and Louisiana Exp. Sta. Bull. No. 893.

The stimulus that urged me to make these blood examinations was the peculiar and striking appearance of certain morphological entities in smears of the first sheep's blood examined, carefully stained with Wright's stain. What first struck me as being possibly hematozoa, pathogenic in nature, I succeeded in proving to be blood platelets, normal constituents of the blood. Mr. Graybill's assistance was of great value in studying these bodies whose nature was exceedingly puzzling at first, but our final conclusion that they were blood platelets was made more tenable by the researches of Leroy D. Swingle, of the University of Nebraska, whose paper we had the pleasure of reading after we had completed our studies. Such incidents as this force one to the conviction that the normal histology of the blood of all the domesticated animals should be studied carefully, so that its appearance under abnormal conditions may be properly understood. Whoever undertakes this study should have in mind the acquisition of a full description of the blood platelets as well as the more commonly understood cellular constituents of the blood. A careful study of Mr. Swingle's paper will show the necessity of thus emphasizing this phase of hematology.

In my studies the hemoglobin estimates were made by Talquist's method, the blood being secured by puncturing or cutting the properly cleansed ear. The count of both erythrocytes and leucocytes was made from the same hematocytometer slide after the blood had been diluted 1-200 with Toison's fluid. In making these examinations the use of a high ocular and a 4 mm. objective reveals the blood platelets as small, morphologically variable, and slightly motile bodies. Many examinations of the blood diluted with normal salt solution were made, using hanging-drop preparations and the highest powers of the microscope. These observations as well as those made on stained smears of the blood

platelets are of no value in elucidating the subject in question and, therefore, will be left for future consideration. I found that the blood of normal sheep told the same story in so far as the blood platelets are concerned, as did the blood of the sheep dying of parasitic infestation.

In previous work on the blood I have recommended Jenner's stain, but samples of this stain purchased subsequently have proved useless. This is not to be construed as an adverse criticism of the stain in general but of those particular samples. Wright's stain is now giving better satisfaction. Properly stained smears show all the cellular elements of sheep's blood and probably all their differential characters as strikingly as any other one staining reagent. Four different varieties of leucocytes are easily made out, viz., lymphocytes or mononuclears, polynuclears, eosinophiles, and mast cells. The lymphocytes are very variable in size and shape of nuclei, and somewhat variable in staining reaction; but, while I have attempted to differentiate between lymphocyte and large mononuclear, I must admit that further study will be necessary for a proper determination of just what these differential characters are. If a mistake has been made in separating them, it can readily be corrected by including under one heading the figures in both columns in table II.

In attempting to supplement the data quoted from Burnett, time was found for examinations of the blood of two apparently healthy bucks in no way associated with Professor Gray's sheep. These two sheep are designated as No. 1 and No. 2 in the tables where they are placed for contrast. The data included in this article are entirely insufficient to establish an adequate conception of the normal limits that may be found in an extensive examination of the blood of healthy sheep. A study of the tables, however, suffices to demonstrate that the presence of the lesions produced by *oesoph. columbianum* in great numbers, as occurred in these sheep, together with the occurrence of the stomach worm in small numbers in many of the cases, and a very coarse, unbalanced, and innutritious ration lessen the vitality of the sheep, lead

TABLE I.

No. Sheep.	Per cent. Hb.	Erythrocytes.	Leucocytes.	Date.	Remarks.
1	85	11,503,000	5,330	1-10-08	Normal buck.
2	85	9,120,000	10,900	2-13-08	Normal buck.
179	50	4,250,000	3,000	12-17-07	{ Pregnant; twins dead; very weak, Oesoph. in intes., lymph gl's, liver.
172	70	7,700,000	6,400	12-27-07	
183	75	6,400,000	11,100	1-9-08	{ Recently aborted, Oesoph. in intest., lymph gl's and liver.
145	25	2,520,000	3,500	1-9-08	
6	75	8,384,000	9,800	1-10-08	{ Ate cotton seed meal over month, nodules in intestine.
8	80	7,640,000	6,000	1-20-08	
175	75	7,112,000	8,700	1-4-08	{ Lamb; weak and emaciated, nodules, megalocytes and microcytes numerous.
					{ Ate cotton seed meal 6 months, had twins, great many nodules.
					{ Had one fetus, torsio uteri, great many nodules.
					Emaciated and weak, nodular disease.

Note.—Nos. 179, 172 and 175 showed most stomach worms.

TABLE II.
Differential leucocyte count.

No. Sheep.	Total Leucocytes.	Lymphocytes.		Large Mononuc.		Polynuclear.		Eosinophiles.		Mast Cell.	
		Number.	%	Number	%	Number.	%	Number.	%	Number.	%
1	5,330	4,370.6	82.	170.56	3.2	618.28	11.6	63.96	1.2	106.6	2.
2	10,900	7,484.66	68½	399.66	3½	2,071.	19.	835.66	7½	109.	1.
179	3,000	900.	30.	45.	1.5	2,055.	68.5				
172	6,400	1,600.	25.	51.2	.8	4,748.8	74.2				
183	11,100	2,175.6	19.6	155.4	1.4	8,769.	79.				
145	3,500	1,166.66	33½	140.	4.	2,193.3	62½				
6	9,800	1,372.	14.	98.	1.	8,330.	85.				
8	6,000	1,650.	27.5	120.	2.	4,200.	70.			30.	.5
175	8,700	3,588.75	41.25	108.75	1.25	5,002.5	57.5				

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to a fatal issue after producing a marked alteration in the blood picture. A decided anemia, polynuclear leucocytosis, and almost

total absence of eosinophiles and mast cells are the characterizing features. The absence of eosinophiles is of special interest when we remember that many parasitic infestations tend to produce an eosinophilia. In nearly every case the blood failed to flow freely and was of a more watery consistency than that of normal sheep. An explanation of the changes in the blood may lie in the mechanical obstruction offered by the widespread occurrence of the nodules in the lymph channels to the absorption of digested nutrients and to the process of digestion itself. In some cases it could be seen that the digestive and especially the absorptive functions were seriously interfered with, when nearly the whole of the serosa of the intestines, the lymphatic glands of the mesentery, and even the liver to a much less degree were studded with caseated and calcareous nodules, incapable of functioning themselves, but undoubtedly acting as a barrier to the process of natural functions.

The effect of the substitution of a more generous and more easily digested ration in preventing further sickness and fatalities indicates that the nodular disease is detrimental to the nourishment of the sheep purely or at most in a mechanical way. To what extent this effect is augmented by the absorption of toxic substances produced by the parasites, it is impossible to say. I apprehend that the feeder's side of the question will be fully dealt with in a future bulletin of the Alabama Agr. Exp. Sta. by Prof. Gray. It is a subject worthy of the attention of the parasitologist, pathologist and animal husbandman.

IT IS SAID that a case has been decided in a Cincinnati court on the testimony of a parrot. The veracity of such a witness cannot be impugned.

DETROIT'S START.—On July 1st the Detroit Health Board appointed its first Dairy Inspector, an appropriation having been made for that purpose by the Board of Estimates last spring. Dr. Jos. Hawkins, O.V.C., 1871, being the appointee, and under whose administration it is hoped to make Detroit one of the best dairy inspected cities of the Central West.

IDEALS FOR THE VETERINARIAN.*

By T. EARLE BUDD, D. V. S., Orange, N. J.

This paper treats of those who have been considering the great question which once confronted each practitioner here. What shall I do in life? For what shall I prepare myself? What shall I study to fit myself to make the most of life and its opportunities? How shall I prepare myself to uplift humanity and the things with which I am brought in contact?

And as each "walk of life" has been reviewed many times the choice has been made in favor of the study of the science of veterinary medicine. In order for any education to be successful the congenial disposition of the child must be considered; in other words, he must be interested and this interest, James tells us, necessitates the focal point and the circle of fading importance. Thus the horse must be the interest for the successful equine practitioner and the world only interesting in its relation to this main interest.

Is it not fair to believe that each student making this his choice has the highest ideals regarding the practice of veterinary medicine, and feels, though perhaps unconsciously, that he will have, in the pursuit of that calling, a larger opportunity for growth and advancement than in any other branch of the profession, and that a greater opportunity will be given him, not only to relieve mankind of anxiety, but also to benefit and heal the great God-given animal of his suffering, much of which he unjustly, through ignorance and thoughtlessness is called upon to bear? This decision being reached by the young man to devote his life to the study and practice of veterinary medicine, let us consider the applicant for such a course of study. Do we demand that he come with the proper high school education with

*A paper read before the Veterinary Medical Association of New Jersey at its semi-annual meeting at Newark, N. J., July 9-10, 1908.

all his regents passed? Or do we unconsciously lend our influence to the old deep-rooted idea which the student has perhaps unconsciously imbibed, that anybody without much care or thought can present himself for admission to our colleges, and become a "horse doctor"? I personally am not surprised that we have that term applied to members of our profession, when we demand so little, and set oftentimes so poor an example of professional etiquette, when dealing with each other, and hold in such light esteem what is due each other. But I rejoice that this idea can be rapidly eliminated by giving greater care to the preliminary education of our students. Let us all see to it that our sons inherit from us the highest ideals regarding this most wonderful science, and receive from us the great opportunity for growth and advancement as given in the study and practice of veterinary medicine.

Again, just how familiar is the student with this perfected creature he so longs to benefit and treat? Does he know anything of the horse in its normal condition, before he presents himself as a student of the horse abnormal? The layman is very much alive to this lack of knowledge of the horse normal, and confidence weakens when he sees the display of such ignorance. "By his acts ye shall know him." Has his preliminary education been such that these things will seem of sufficient importance so that he will give due consideration to them and realize the vast difference in the horse he knows on paper and the patient who stands before him? Does he know the horse as we see him every day? The animal, restless, nervous, suffering, but doing the thing required of him in the best possible way, under the trying circumstances, is unable to appear at his best, yes even at his second best. But the result nevertheless makes the owner feel the horse, in which he expected to take such pleasure, from which he would obtain such a large advantage, a failure. Now, the question is, has the training of our professional man been such that he will be alert to find out how many of such conditions come from accessible causes such as poorly fitted harness, etc.? All these things will make a fine animal appear at a great disadvantage.

How many accidents are caused by such inexcusable ignorance! Can he adjust the ills that arise from such causes in any other way than by giving the prescription which calls for the medicine to be given every three hours, until relief comes? Do you wonder, gentlemen, that the horse is often sold in disgust and the machine purchased, for when difficulties come to it the machinist knows just how to approach the trouble. If these are the conditions we find, is it not evident that the preliminary education of our students is sadly deficient, and failure is imminent?

Great structures are never built from the top down, but it is to the care and attention given to details of the foundation that warrants the safety of the building, so it is the care and attention we give to our preliminary education that will fit us to use successfully the knowledge we gain from our college course. Begin by observing the men who are successful and are what you so longed and determined to be when you first decided to make the study of veterinary science your life work. Determine to be not only a successful practitioner, but a respected citizen of the community in which you live, to be a man whose advice will be sought on the civic conditions of the community; a man whose associates are the highest; a man after whom you would be glad to have your son pattern.

Again, never allow yourself to think of your call as a summons to see a horse; think of it always as a call to see a patient, and that implies at once that you have need of just the same courtesy, just the same gentleness, yes, and let me add, just the gentleness and just the same quiet dignity of manner and voice that your brother practitioner the M. D. feels is so necessary for his success in life, and without which he would never succeed. Always feel that you even require more skill than he, for no questions can be asked of or answered by your patient to change impressions made. Your patient stands before you dumb, with only certain movement of muscle or action as aids to your diagnosis, but always with that pleading, longing look, asking of you to give to him your best thought and en-

deavor. To you it must be an exemplification of that old adage, "Where actions must speak louder than words."

Again, you must study to meet men and you have here so much to learn, so much to consider! You, by giving much care and thought to your preliminary education, can more easily dispel the deep-seated conviction that the coachman or the neighbor can treat your patient as well as you can, and if care is not exercised in your preliminary education their approach to the case will better inspire confidence than yours, for he at least knows your patient in its normal condition.

To be courteous under ill-advised suggestions means much. For example, I was called upon to see a patient suffering from a severe attack of parturient paresis. In the presence of the owner the suggestion was made by the caretaker that the tail be split and salt applied. Anxiety for the recovery of the very valuable patient makes the owner in a measure attentive to the suggestion and the advice given is often taken with more than a "grain of salt," but to be able to inspire confidence in both owner and caretaker requires study, skill and tact, for you are like all other practitioners largely dependent on the nurse for your success, and your nurse is his coachman, so he is not to be ignored, but to be considered and educated. And his education is in your hands. Never argue, but always be willing to explain as far as you deem wise, and be able to give an intelligent and polite answer to any questions. It never detracts from knowledge to be courteous and polite, and never contradict, but by your manner inspire confidence in your ability to treat this particular case, and the advantage gained under these trying conditions will be lasting and the advantage gained for our profession will show in the growth of each practitioner towards the higher ideal.

DRIVEN TO DRINK.—Artist—My next picture at the academy will be entitled "Driven to Drink." His Friend—Ah, some powerful portrayal of baffled passion, I suppose? Artist—Oh, no; it's a horse approaching a water trough!

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

AN EPIDEMIC OF ACUTE POISONING IN HORSES.

By T. F. RICHARDSON, B. S., D. V. S., Goldfield, Nev.

March 1st I was called to see a sick horse at the Arizona feed yard. From the owner I received the following history of the case:

The patient had not been used for the preceding ten days, had been in good condition up to the previous forty-eight hours when he noticed the horse standing in rather a dull and listless manner with its head hanging in the manger. Upon speaking to the horse he jerked up his head suddenly. Seeing something was wrong he tried to back the horse out of the stall but could not do so. He then swung him around and walked the horse to water. After a few steps patient limbered up and appeared all right. This morning the owner had gone to the stable and found the horse down and unable to rise.

My observations—Sorrel gelding, about seven years old, laying stretched out on side in rather roomy box stall, good ventilation and plenty of clean bedding; temperature, 99.2; pulse, normal; respiration slightly accelerated but not alarming; urine color, bright yellow and copious in quantity; towards the end of the catheterization urine was rather thick and turned a dull white with sediment; alkaline to litmus; made no test for S. G.; heart sounds, good; no abnormal tones in lungs; mucous membrane of nostril, mouth and conjunctiva congested but moist; croup muscles, pliable and soft, could get no signs of pain on palpation on any portion of the body. On giving a command to patient to arise he would make an effort with neck and head but could not use the fore or hind limbs, seemed to be completely paralyzed.

I questioned the owner thoroughly as to what medication had been administered to the patient before my arrival. Nothing had been given, but about a week or so before he had changed the

feed from straight timothy to a mixture of timothy and alfalfa. I advised a large dose (200 gram.) Carlsbad artificial salts, also warm enemas. I also mixed 1 gr. Strych. nitr. and gave hypodermically. Insisted on patient being placed in slings. Patient did not seem to respond to stimulant so gave 1-2' grain half hour after first. At this moment I was called to 'phone and requested to call at Proctor's barn, his team was down and unable to get up. Upon arriving at Proctor's found a gray team down and symptoms the same as in the patient I just left.

History from Mr. Proctor: Team was used to supply the suburbs of Goldfield with water, had been worked the previous day and showed no signs of illness, went to the barn that morning to feed and found them down and unable to get up.

My observations—Pulse normal in both patients; temperature (No. 1) 99.8, (No. 2) 99.6; urine, light yellow in both, thick sediment in the final discharge from No. 2; respiration, good; heart, sound, normal; visible mucous membrane, bright red; gluteal muscles, soft and pliable, no signs of pain from palpation.

I cracked a whip and commanded horses to get up. They made an effort with neck and head, but could not use fore or hind limbs. As I was finishing my examination I was called to the 'phone and requested to call at once at the Trading & Transfer Company barn, one of their horses was down and could not get up. I gave Mr. Proctor a prescription for a saline purgative to be administered at once, and get patients into slings. I arrived at the Trading & Transfer Company barn and found a large sorrel gelding down and showing the same symptoms as the other patients. I prescribed salines and enemas for this patient and insisted on the slings. It will be noticed that I have given no diagnosis in these cases. I could not give one, for the simple reason I did not know what was the trouble. My first impression was spinal meningitis, but lack of any abnormal temperature or accelerated pulse rate would eliminate this diagnosis, azoturia. The previous history, together with the clear yellow color of the urine and softness and pliability of the muscles generally involved in this condition would exclude this disease. Nephritis I also removed from the possibility of it being the disease. It was at this moment, while trying to bring my mind to bear on the different causes which would lead to such conditions, that the manager of the Trading & Transfer Company gave me the clew which subsequently proved, to my mind, to be the cause of

the trouble. While walking through the barn discussing the probable prognosis of the patient I had come to see I asked him what feed was used in the stable. His reply was that generally they fed timothy and oats, but about February 22 they had received a consignment of hay, it being a mixture of alfalfa and timothy, and it did not look good to him.

I looked at the hay in question and found it rather dusty and the centre of the bales consisting of the hard stems of alfalfa, no blossom was visible and the leaves would crumble into a fine dust when rubbed between the fingers. I now hurried back to see the owners of my previous patients at the Arizona feed yard. They had changed from timothy to timothy and alfalfa. About February 23 on that day they had received one ton of hay from a small dealer (Holmes) for a bill due of \$32, half of this hay was timothy, the other consisted of timothy and alfalfa. The reason for going into the details of this transaction is because the whole fabric of my investigation rested on the above statement and its proof. At Proctor's they had changed from straight timothy to the mixture about three days before his horses were taken sick. He received his feed supplies from the Trading & Transport Company. From March 1 until about the 27th I received about four calls daily to see different horses which were down and unable to rise. In every case they had changed the hay ration after February 22 from timothy to the mixture. I told the individual owners and also put notices in the public prints about the poisonous qualities contained in the mixed hay, for by this time I had come to the conclusion that the horses were being poisoned and that the toxin was contained in the mixed hay.

My conclusions did not seem to meet the approval of the majority of the horse-owning public. To use their own expressions, "Why they fed alfalfa before I was born and it never killed any horse. Then why should it kill them now?" Things were getting pretty bad for me, my reputation and practice was at stake and something must be done. At this stage I sent for the state veterinarian, who, upon arrival, looked into the matter and agreed precisely in my diagnosis that the source of the trouble lay in the mixed hay. But this was not sufficient for the horse-owners. They said he was of the same profession as myself and professional courtesy would make him agree with me. To make matters worse I sent a sample of the hay to Agricultural Department of the State University. Dr. Mack, the bacteriolo-

gist at that institution, could not find anything deleterious in the sample tested and would have no uneasy feelings in feeding his own horse the same class of hay. I also sent him a specimen of the spinal cord at the lumbo-sacral region from one of the horses, but the cord being too complex in its structure could hardly be made the subject of a final diagnosis. Post-mortems, did I make any? Yes, fifteen; but I will bring them out in the summary of this article.

At about this time forty-seven horses had died from this affliction and I had fifteen others in improvised slings. All pa-

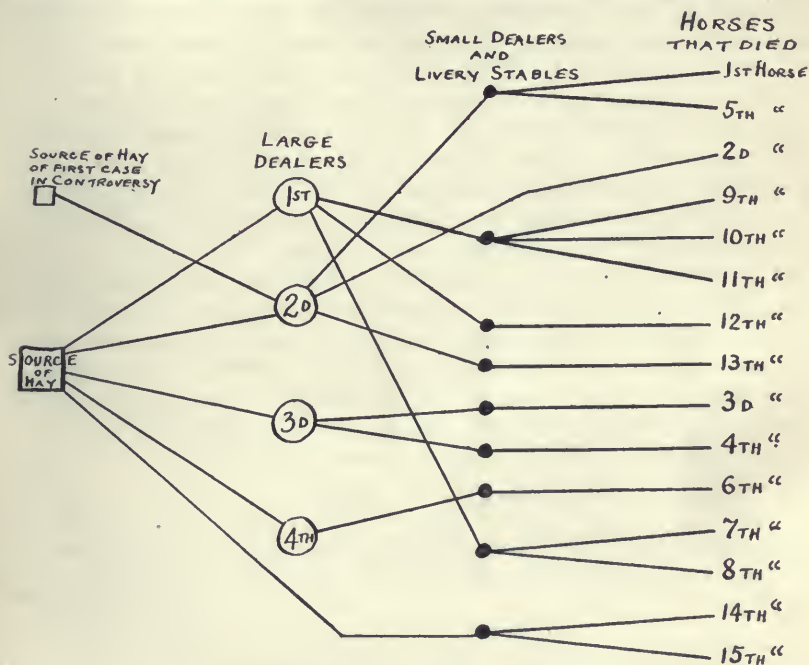


Diagram showing source of hay and how it reached horses through different dealers.

tients on bran mash and timothy hay. After a thorough purgation, some of them almost to the point of super-purgation with salines, and each receiving three times daily 15 grams Fowler's solution, they are all well now and at work. Some of the patients receiving a gallon of the solution during these treatments. The fact of the matter is, I pushed this treatment to the limit. I was persistent in my belief that the source of the trouble lay in the mixed hay, and to better impress my clients I made out the following diagram attached.

Every horse that suffered from the complaint partook of this hay.

I had now convinced my clients that I was right in my contention, except the source of the hay from which the first horse taken down with the complaint died. As I remarked in the first of this article, the pivot of the investigation was in proving that this horse partook of the hay. Mr. Holmes, who sold the hay, to square a bill of \$32, insisted that he never had a mixed hay in his yard. The Arizona feed yard claims they received one-half a ton of mixed hay from him and that the horse which died ate it almost all up. I did not care to doubt Mr. Holmes, knowing personally that he received all his hay from another direction.

About a week later I went down to the Trading & Transfer Company's barn to see how the patients in slings were getting along, incidentally I asked the manager of the stable if the firm had ever sold any hay to Holmes. "Let me look over the books a minute," he remarked, "and I'll tell you." After going over the books he found that Mr. Holmes had borrowed a couple of tons of hay until his own consignment arrived. This couple of tons was a mixture of timothy and alfalfa. I said nothing but thanked him. I hot-footed up the street to interview Mr. Holmes. At first Mr. Holmes could not remember, but as the remembrance of the transaction dawned upon him he recollected that to make an even \$32 in the price per ton he gave half of one kind and half of the other to the Arizona feed yard. The following from the books of Mr. Holmes will tell its own story:

Feb. 23d, to Arizona Feed Yard,

1/2 Ton Timothy, @ \$35 per.....	\$17 50
1/2 Ton Mix. Tim. and Alfalfa @ \$29....	14 50

\$32 00

Summary—Forty-seven horses died from the complaint, fifteen got well.

The symptoms in each case were identical. After the patients would be put in slings they would support themselves on their own limbs and eat and drink as if nothing was the matter for about twelve hours, then they would collapse in the slings, and to save them from choking to death they would be lowered to the ground. After a rest of some hours they could be slung again, but each time they appeared to get weaker. During the final twenty-four hours the temperature would go up excessively

high— $107\frac{1}{2}$ being common. From the rise of temperature I could foretell the probable time of their demise. Of the fifteen cured only two showed temperature above normal, one showed 103 and the other $102\frac{1}{2}$. I prescribed aconite, seven drops every fifteen minutes for three hours, and I would call this reduced temperature in both cases, it never reoccurred.

The post-mortem lesions that I could find consisted of a congested appearance of the meninges of the cord, especially in the lumbo-sacral region. All other organs seemed normal. Of course, I found isolated lesions in lungs, kidneys, liver and spleen on different cadavers, but not the same in each case or were they, in my opinion, the cause of death in any one case. The psoas muscles in three cases had a washed out appearance, and in each the right kidney had a small abscess encapsulated in the tissues but not large enough to merit consideration as a cause of death.

In conclusion, I may add that my own opinion of the cause of the epidemic is not in the alfalfa as a feed but that we here in Goldfield were unfortunate to get into a stack of hay which was either moldy, had been put up too green, and fermentation of some kind had taken place, or the alfalfa was second crop, which was cut too soon. Since the elimination of this hay we have had no new cases, but one dealer, "who, by the way, had sixteen horses down with the complaint," having a large quantity of this mixture on hand, asked me what to do with it. I told him to feed it lightly to his stock, say, about three feeds a week, but not to give two feeds in succession to the one horse. In this way he could save the hay. I gave him this advice over the 'phone. It seems he got my advice mixed as well as the hay, because he commenced to feed it exclusively to one horse every meal with the result that four days later I was hurriedly called to attend the horse's demise.

GENERAL ANAESTHESIA BY INTRAPERITONEAL INJECTIONS OF CHLORAL HYDRATE.

By J. MARTIN RICE, V. S., Bobcaygeon, Ontario, Canada.

After reading an editorial in the AMERICAN VETERINARY REVIEW of May, 1907, concerning general anaesthesia produced by intra-peritoneal injections of chloral hydrate by Professor Sendrail, I was tempted to investigate that drug in the above way.

According to Professor Sendrail, the dose required to produce anæsthesia by this channel is: For the horse, 25 to 75 grammes (5viss—5xxi), or 1 gramme for every 10 kilogrammes (approximately 70 grains per 100 pounds) bodyweight of the horse.

For dogs, the dose varies from 2 to 12 grammes (3ss—3iii), or 1 gramme for every three kilogrammes (15½ grains for every 6½ pounds of bodyweight.

It is given in a 10 per cent. aqueous solution, and Professor Sendrail claims that it does not affect the heart in the least, nor does it produce excitement of any account.

The solution is injected or poured into the peritoneal cavity by the aid of a trocar and canula, with a funnel and a piece of rubber tubing to attach to the canula after the trocar is withdrawn. A large syringe may be used instead of the rubber tubing and funnel. The experiments I have performed have been almost entirely upon dogs, and the following are a few of them:

No. 1. Collie dog, weighing about 35 pounds, was given (intra-peritoneally) 75 grains of chloral hydrate in a 10 per cent. solution. No anæsthesia resulted, only a slight drowsiness.

N. B.—This solution had been made for several days previous to use.

No. 2. Same dog as in No. 1 experiment, two days after, was given an intra-peritoneal injection of 80 grs. in a 10 per cent. solution. When the solution came in contact with the peritoneum it produced slight pain. Two minutes after injection he trembled and shivered and reeled around in a drunken fashion, toppled over several times, evidently having no control over himself.

Fifteen minutes after injection he laid down and slept, but still continued to tremble as if chilled.

About two minutes after he had gone to sleep castration was performed, and the only time he evinced pain was when the cord was severed, which he showed by raising his head slightly and giving a low moan.

The heart beats were normal but the respiration was slightly increased and decreased at intervals.

Forty-five minutes after injection neurectomy of the right front leg was performed, no pain was evinced when cutting through the skin, but when the nerve was severed there was slight pain. The skin was sutured during which time the dog licked the operator's hands. No pain was felt when the needle was thrust through the skin.

After the operation was finished he would look around at his scrotum and lick the wounds (both scrotum and leg), and when spoken to and petted would appear as if nothing had happened.

Fifty-five minutes after injection the animal drank about a pint of water. Food was offered about one hour after consciousness returned, but was refused, although he appeared quite bright and cheerful. Four hours after food was again offered which was eaten very greedily. No ill-effects followed.

During the period of anaesthesia the nose became very hot and dry. The eyes were bloodshot and partly closed and tears ran down the cheeks. The tongue hung out of the side of the mouth and both tongue and mouth were very dry.

In this case it shows that castration was performed before anaesthesia was complete and that neurectomy was delayed till within a few minutes before consciousness returned. If castration had been delayed for a few minutes, probably no pain would have been felt.

No. 3. Dog weighing about 45 pounds and very fat was given an intra-peritoneal injection of 95 grs. of chloral hydrate. This dog was very savage and had to be tied to the floor by the aid of ropes passed through two rings in the floor, and before we could get him unfastened after injecting he was in the stage of narcosis. Slight irritation was produced when the solution came in contact with the peritoneum.

The animal had just gone into a nice, sound sleep when he vomited the food which had been given him half an hour previously, and would have been asphyxiated had not his head been raised and the food shaken out of the mouth and throat. The animal being unable to move himself because of partial anaesthesia.

Castration was performed and not the slightest pain was felt, anaesthesia lasted two hours.

During anaesthesia the nose was hot and dry, tongue protruded from mouth, and both mouth and tongue were very dry. The eyes were partly closed and tears ran down the cheeks.

Heart beats were normal and respiration was increased and decreased alternately.

When consciousness returned he drank an enormous quantity of water, similar to No. 2 experiment.

No. 4. Same dog as No. 3, but experiment was performed two weeks later; was given 100 grs. in 10 per cent. solution.

Anæsthesia was complete in a few minutes. At the end of three and one-half hours strychnine sulphate gr. $\frac{1}{2}$ was given hypodermically.

Fifteen minutes elapsed still no change took place, but on being touched upon the nose a violent spasm developed. During the following thirty-five minutes ten more spasms developed, the last resulting in death. The animal died without regaining consciousness, and on the spot where it had lain during the whole period of anæsthesia.

No. 5. Collie dog, weighing about 35 pounds, was given an intra-peritoneal injection of 85 grs. in an 8 per cent. solution. In about ten minutes the animal became slightly narcotized, which lasted about fifteen minutes and was then as well as ever again.

No. 9. Dog weighing 25 pounds was given 70 grs. in a 10 per cent. solution. Anæsthesia was complete in five minutes; castration and laparotomy was performed, anæsthesia lasted three hours. The animal made a good recovery.

No. 11. Dog weighing about 40 pounds was given 120 grs. of chloral hydrate in a 10 per cent. solution. Anæsthesia was complete in twenty minutes. Amputation of the left front leg at the knee was performed. No pain was felt during the operation; anæsthesia lasted four hours. He made a good recovery and was kept for other experiments.

No. 12. Dog weighing about 30 pounds was given 100 grs. chloral hydrate in 10 per cent. solution. Anæsthesia was complete in twenty minutes. The cranial covering was then removed during which time the animal gave a few low moans. The brain and coverings were found to be very hyperæmic (engorged). A portion of the brain was removed and during that time two or three twitchings of the body took place.

The next step taken was an incision right through into the abdominal cavity, and the peritoneum, and intestines examined for any change which might have resulted from the injection of chloral hydrate upon the membrane; everything was found healthy.

The thoracic cavity was opened next and the heart viewed which seemed to beat quite natural; this was watched for twenty minutes when an incision into the heart ended its function; the blood squirting about fifteen inches out from the incision.

No. 13. Dog weighing about 35 pounds was given 100 grs. of chloral hydrate in a 10 per cent. solution subcutaneously at the flank. Narcosis followed in forty minutes and lasted for fifteen

hours but no anæsthesia resulted. The part where it was injected was painful when touched for two or three days after.

The anæsthetic action of chloral hydrate may be due to depression of the cerebro-spinal centres and cerebral hyperæmia combined. When chloral hydrate is given by the mouth it is undoubtedly changed to a considerable extent by the alkaline contents of the small intestine; and that may be the reason it does not act very well as an anæsthetic when given that way. Anæsthesia can be produced by intra-venous injections of the drug, but is very dangerous. It should be given when the stomach is empty so as not to produce vomiting, which it does probably by acting upon the vomiting centre in the medulla.

It acts best when given in 10 per cent. solution. The heart beats were normal and the animals, as a rule, are as bright as ever in about eight or ten hours after consciousness has returned if plenty of water is given to drink.

The solution is best when prepared fresh. Strychnine seems to be of little use as an antidote but pilocarpine is very satisfactory, as it promotes the elimination of the chloral hydrate.

When operating upon animals under the influence of this drug the blood vessels should be ligatured to prevent bleeding, because chloral is a vaso-dilator and hæmorrhage is likely to occur from the larger vessels.

NOTES ON TETANUS.

By DRs. N. S. MAYO and W. W. DIMOCK, Chief and First Assistant, respectively, of the Department of Animal Industry, Republic of Cuba.

As is generally known tetanus is very frequent in Cuba, not only among domestic animals but among human subjects as well. The tetanus bacillus seems to be commonly distributed over the island as well in the cities as in the country. It is probable that the climatic conditions are favorable to the prolongation of the life of the organism and it is possible that the common practice of stabling animals in connection with houses may be an important factor in the frequency of tetanus, at least it is liable to detract from cleanliness that is considered so important in its prevention.

The mortality from infantile tetanus caused by umbilical infection was formerly very high, but, owing to the efficient work of the National Sanitary Department in diffusing information

among the common people regarding the origin of tetanus, and supplying antiseptic dressings, the mortality has been greatly reduced. While it is a common thing to see naked children playing about the houses or streets it is rare to see them barefooted, as shoes serve as a protection against wounds of the feet and "hookworm" infection.

Among horses and mules tetanus from wound infection is very common, and it is very important that all wounds be dressed antiseptically. The injection of tetanus antitoxin as a prophylactic following wounds gives excellent results and is used extensively by the American army veterinarians in Cuba. It is probable that the practice of not castrating stallions is due in large measure to the danger from tetanus that follows this operation when performed by the ordinary Cuban method. The common people here recognize two forms of tetanus in animals. Cases that follow wound infection, and another form where there is no apparent wound. The latter is usually in a milder form and is commonly called "moon tetanus" from some mysterious influence of that celestial body that we are unable to explain clearly.

We have treated a number of cases of tetanus that, greatly to the surprise of the natives and sometimes to ourselves, have recovered. The people generally consider tetanus in animals to be a fatal disease. In treating tetanus, we consider it very important to get at the seat of infection by opening the wound freely. If pus exists, we use peroxide of hydrogen freely, then apply a solution of one part of carbolic acid, one part of glycerine and two parts of water, afterward packing the wound with absorbent cotton saturated with a 5 per cent. solution of carbolic acid. We dress the wound twice daily with the 5 per cent. solution. If the wound penetrates the flesh deeply we inject a 5 per cent. solution of carbolic acid near the base of the wound or seat of infection as possible. We also inject 5 c.c. of a solution of one part carbolic acid, one part glycerine and two parts water, beneath the skin of the neck three times daily. We also use antitetanic serum every six hours if we can get it. If the animals can eat we give all the laxative but nutritious food they will eat and all the fresh water they will drink.

The following are brief notes on twenty-two cases treated, as previously indicated:

No. 1. Small Cuban jack—Infected through nail puncture in foot. Symptoms were well marked when animal was brought for treatment. Recovery.

No. 2. American mule (female)—Infected through nail puncture in foot. Nail was not discovered until mule went lame. Four days after removal of nail tetanus developed. Recovery.

No. 3. American mule (male)—Infected through nail wound in foot. Nail removed and turpentine applied. Seven days afterward tetanus developed. Recovery.

No. 4. American mule (male)—Infected through nail puncture in foot. Tetanus developed twenty days after injury. This mule seemed to make a good recovery and was turned out to pasture. Seven days afterward it was found dead in pasture. We think that this case was allowed to go too soon. Recovery from tetanus is slow and if this case had been looked after it would probably have recovered. The owner said that the mule seemed all right. Death may have been due to some other cause.

No. 5. Cuban saddle mule (female)—Evidently infected through saddle galls. In addition to the general treatment hypodermic injections of 5 per cent. carbolic solutions were made about the wound. Recovery.

No. 6. Cuban mare—Nail wound in foot. Treatment recommended. Owner did not report results. Probably died.

No. 7. Cuban saddle mare—Wire cut on foreleg. Treatment recommended. Recovery. This mare aborted in two weeks. In this case the carbolic acid solution was administered by the mouth.

No. 8. Cuban stallion—A short rusty nail was imbedded in the frog and was not discovered until symptoms of tetanus followed. This horse was given six 10 c.c. doses of human tetanus antitoxin in addition to the regular treatment. Recovery.

No. 9. Native ram in advanced stages—This animal was perfectly rigid and could scarcely move a muscle. There was no visible wound. Hypodermic injections of carbolic acid. Died in 36 hours.

No. 10. Cuban mule (male)—Infected through nail wound in foot and was kept at work until it was so stiff it could scarcely move. Treatment recommended. Died in 36 hours.

No. 11. Young native horse—Nine days following castration showed well-marked symptoms of tetanus. This horse was ridden in, a distance of nine miles and back. Treatment recommended. Died.

No. 12. Native ram—This animal presented a peculiar complication of symptoms. It had been bitten by a dog five days

before. Disinfected wound and injected carbolic solution hypodermically. Died.

No. 14. American mule (female)—Infected through nail wound of the foot. This case was seen fourteen days after the injury. The wound had suppurated and the sole and heel had separated from the soft tissues and the symptoms of tetanus were well marked. Sole of foot cut away and regular treatment given. This mule seemed to be in a fair way to recovery, but died on the fifth day.

No. 15. Cuban mare—Mild case of "moon tetanus," that is, there was no visible wound. No treatment recommended. Mare put on pasture. Recovery.

No. 16. Cuban mare, with nail puncture of the foot. Ten days after the nail was removed the owner noticed symptoms of tetanus. Treatment recommended. Mare died in five days.

No. 17. Native horse—Infected through nail wound in foot. Treatment recommended and the animal apparently recovered and was traded, but died in two or three weeks. Cause of death not known.

No. 18. Native stallion—Nail wound of the foot. Treatment recommended. This animal was seen one week after it was first brought to us and was doing as well as could be expected. Several days later death resulted.

No. 19. Cuban stallion—Nine days before the horse had been "fired" for splints and the wounds were inflamed and suppurating. Symptoms of tetanus were developing. Wounds were disinfected and antiseptic pack applied. No other treatment. Recovery.

No. 20. Native ewe in advanced pregnancy—Large lacerated wound on shoulder from bite of dog. Wound treated once, carbolic acid injected and treatment recommended. No report.

No. 21. Native stallion—Castrated February 4th. February 18th the wounds had healed and the horse was put to light work under the saddle. February 25th marked symptoms of tetanus developed and grew worse until the horse was down. Slings were used. The old wounds in the scrotum were opened and solutions of carbolic acid injected into the scrotum and into the surrounding tissues. 125 c.c. of veterinary antitoxin were given in 25 c.c. doses every six hours as well as injections of the strong carbolic solution. Recovery.

No. 22. American saddle horse—Tetanus developed and a nail was found in the foot. In addition to the regular treatment,

100 c.c. of veterinary tetanus antitoxin was given. Recovery.

Of the twenty-two cases here reported ten made a good recovery, seven died and among these were two sheep. Of the five doubtful cases two seemed to have practically recovered, but later died. In those cases where treatment was recommended it must be remembered that whatever treatment was given was by natives, the most of whom could not read or write. We feel that if these cases could have been under our own supervision the results would have been better.

SPINAL MENINGITIS.

By J. G. WILLIS, D. V. M., Chateaugay, N. Y.

Case 1. September 5, 1907, a horse was driven to my stable a distance of about four miles and I was asked to prescribe treatment. Animal was sweating profusely and nearly exhausted. Owner informed me he had been showing signs of something wrong for some weeks. Horse was about six years old, teeth good, pulse accelerated but regular, and, as far as I could find, no organic difficulty. I concluded it was a case of indigestion and prescribed gentian nux vomica and nitrate of potash together with complete change of diet. Owner was also instructed to give animal bran mash or other laxative food at least twice weekly and purgative ball of aloes, nux vomica and calomel was given before starting for home.

Five days later I was called to see same animal. He had not shown improvement under treatment given but was apparently in about the same condition, but on this morning was found down in the stable and could not rise. Pulse was regular but soft temperature and respiration normal, some salivation and difficulty in swallowing but animal showed no pain and lay flat as possible with no struggling. Case puzzled me and I gave no diagnosis but prescribed stimulants and gave injection to relieve bowels with no result. Then gave one grain aresoline hydrobromate with no result. Animal became violent soon after and died that night. Post-mortem showed congestion of brain but otherwise viscera was apparently normal.

Case 2. Was called October 12, (about one month later) to same stable. I found a thoroughbred aged mare down and unable to rise. Pulse soft and slow, temperature 100.2, respiration normal.

History of this case was unsatisfactory. Nothing unusual had been noticed until animal found down in the morning. Suspected spinal meningitis and prescribed cold applications to head and heart stimulants internally. She grew rapidly worse and died in less than twenty-four hours.

Post-mortem was more thorough than other case. Found internal organs normal except small abscess in liver. Pronounced cerebral congestion and infusion into ventricles of brain. Post-mortem seemed to confirm diagnosis of meningitis.

Advised owner to disinfect premises thoroughly and to remove other animals from stables for some time. He was also warned to be careful about hay and water used, but I could see no cause for suspecting further trouble from that source.

March 12, 1908, I was again called to same stable. This patient was a valuable Kentucky thoroughbred stallion and had been showing some unusual actions for several days. He had refused food, seemed uneasy and peevish when touched on the loins or hips, while his tail was partly paralyzed.

I immediately prescribed cold applications to head and spine, gave physic ball and ordered 1-2 oz. Pot. iodide three times daily, next day added 3 dr. Pot. nitrate to this powder, and three days after substituted Pot. bromide for the iodide, giving 2 dr. Pot. bromide and 2 dr. Pot. nitrate for four days.

This case exhibited varying symptoms, seemed quite lively at times with periods of dullness and motor paralysis. Pulse was quite normal and temperature slightly above ordinary. Brisk friction over legs and hips was given several times daily and animal fed sparingly on hay with frequent bran mashes. He is now apparently as well as ever and I am inclined to give iodide and bromide of potash credit for bringing about his recovery.

TETANUS.

By J. G. WILLIS, D. V. M., Chateaugay, N. Y.

Subject—Six-year-old gelding weighing about 1,150 pounds, in good condition.

History—About two weeks before I saw him he had injured outside of right hock slightly by backing against ironwork of a grain seeder. Wound was slight and no attention except usual greasing with gall cure or lard. When I saw the case the nervous

symptoms were pronounced and protrusion of membrana nictitous prominent. Tail was extended, eyes staring, temperature 102 degrees F. Bowels regular and loose and animal ate and drank with little difficulty but considerable salivation. Diagnosed case as tetanus and determined on anti-toxin treatment and ordered ten doses (Mulford's) at once. Placed animal in large, roomy underground stable dimly lighted and began treatment with following powders while awaiting arrival of anti-toxin:

R Cupri. Sulph.	} aa	̄iss
Ferri. Sulph. exic.		
Bellad. Fol. Pulv.	} aa	̄iii
Gentian Rad.		

M.—Two tablespoonfuls four times daily in feed. Also gave animal tablespoonful of carbolic acid in each pail of drinking water. Disease was progressing rapidly and trismus was appearing when anti-toxin arrived. As near as could be learned this was eighteen days after injury.

I began treatment with anti-toxin at 7 p. m., injecting 30 c. c. Next morning at 9 a. m. and again at 4 p. m. dose was repeated. This was continued for four days without noticeable change except trismus decreased. On fifth and sixth days only one dose of anti-toxin was given and powders were discontinued. Animal began to improve rapidly and made complete recovery.

Case 2. Subject: Gelding aged about fifteen years, used as a family horse, weighed about 1,100 pounds, in poor condition.

History—Only injury owner remarked was calk wound sustained some three weeks previously in deep snow. Hardly seemed possible infection could have come from that source, but no other external injury observed.

When my attention was called to animal first he was on sleigh eight miles from home. Tail was raised, nictitous protruded, pulse normal and no other suspicious symptoms. Owner said he ate and drank well but showed some unusual fear of his head while eating and while being fed. I told the owner my suspicions and gave him directions to observe animal carefully for a day or two and report. Returned in two days, symptoms little changed but pulse accelerated and owner said nervousness was more pronounced in stable. I advised anti-toxin treatment and injected 30 c. c. first day as in previous case, then twice a day for two days, then once a day, only eight doses being necessary to bring entire recovery. Used carbolic acid in this case also, but

no other treatment. My success in these two cases has given me much confidence in the anti-toxin treatment, but I believe the use of an internal antiseptic is also valuable with local antiseptics to wound when it can be located.

IMPACTION OF THE CÆCUM.

By DR. H. B. TREMAN, Rockwell City, Iowa. Reported to the Iowa State Veterinary Association.

I am afraid many of you will be disappointed as I am on the program for a paper, but I only promised to report two cases, and all I have to offer is simply a report of two cases of impaction of the cœcum, which I observed in my practice. My reasons for reporting these cases are twofold. The first is that I think such cases are rare. Dr. Bell said, in an article on intestinal troubles, that he had never been fortunate enough to find a case on post-mortem.

Dr. Law gives this trouble only passing mention, and Dr. Reck, in his excellent and complete little work on equine colics, has nothing particular to say about it.

I have been unable to find anything whatever in any literature at my command in regard to it.

My second reason that I believe with Dr. Reck that the time is now ripe for an attempt at diagnosing these different intestinal disorders and thereby treating them the more intelligently. Our M. D. brothers are doing so with much more accuracy than in former years and why can't we do the same.

In these particular cases I believe I noticed one symptom at least which seemed to me as diagnostic of this particular kind of colic.

Case No. 1.—On June 24th I was called seven miles in the country to see a black draft mare, eleven years old, due to foal early in September.

Upon careful examination I diagnosed what I supposed impaction of the large colon. Treatment was nux vomica and carbonate of ammonia, followed in about one hour by terabanthina, aromatic spirits of ammonia and linseed oil, with one and one-half grains of eserine. In about an hour got a good action on the bowels and recovery. The mare continued well till after foaling, September 19th. September 20th the owner informed

me by telephone to come quick, the mare was in terrible pain and bleeding some. Before my arrival the owner had given two ounces of laudanum and the mare was easier.

I found the temperature 102° F., pulse 80, and respirations somewhat hurried. The bowels had been fairly loose. There was some hæmorrhage from the uterus, which I irrigated with an antiseptic and styptic. I also found the right cornua of the uterus well over to and above the left, which I righted without trouble, and thought I had cured the case.

September 22d almost the identical procedure was gone over. September 23d was called again with the same story, except that hæmorrhage had ceased. The patient was somewhat easier when I arrived, and I could find nothing wrong with the generative organs in any way.

I then decided there must be some bowel trouble, this being the first time I had arrived in time to see the symptoms of pain myself.

I gave three grains of pilocarpine and one and one-fourth grains of eserine, with most elaborate results in less than an hour. The patient got, what the owner called, a good cleaning out.

Nothing more was heard of the patient until September 28th, when I was called as before and told the mare was fairly tearing the stable down.

The owner again gave two ounces of laudanum, in spite of what I had said against it, and still again the patient was eating hay when I arrived. Temperature, pulse and respirations were about normal.

I gave one pint of oil to counteract the effects of the opium and left a few doses of nux vomica to be given.

Everything went well until October 4th, when I was again called in a hurry, but this time the mare was not easy. Instead she was in a state of shock, and within a few minutes was dead.

Upon post-mortem I found the cæcum fully twice its normal size and packed solid with ingesta nearly dry, and a rupture about eight inches long on the lower side about the middle of the organ.

Now the questions in my mind are: Was that mare's sickness on June 24th due to impaction of the cæcum? Was that cæcum in a state of impaction from September 20th until October 4th, the day of her death? I think it was.

Case No. 2.—This case was 12 miles in the country. Was asked to come in a hurry, as usual; the mare was very sick.

Upon my arrival I learned that an imperic from a neighboring town had been called on Tuesday, this being Thursday. This man had been treating the case for inflammation of the bladder, but he had given a large dose of oil which had worked well and the mare had purged considerably.

The patient was in such a state of shock it was dangerous to go near. She was liable to fall any minute. Temperature 107, pulse imperceptible, membranes almost purple, respiration quick and catchy.

Of course I was asked for diagnosis, prognosis, treatment, etc., etc., immediately. My prognosis was death in a very few minutes. For diagnosis all I had was subjective symptoms, the only objective being those of collapse. The symptoms, as I got them from the owner, were dull pains, quite continuous, more or less frequent urination as well as frequent movements from the bowels, especially after the oil took effect.

Death took place within ten minutes after I arrived. Post-mortem revealed almost identically the same condition as found in Case No. 1, except the rupture was larger and more excreta out in the abdominal cavity.

In these two cases there is one symptom that struck me as being characteristic or diagnostic of this particular impaction. That is the characteristic general symptoms of impaction of the large colon, except the more or less regular and full movements of the bowels, which also responded to purgative medication without relieving the impaction or even any of the symptoms in Case No. 2. This we know is not true in a case of impaction of the large colon.

MAILEIN AND THE TUBERCULIN TEST.*

By E. H. NODYNE, V. S.

On May 19th last, as an experiment, I injected two cows with 2 c. c. each of mallein with the following result:

Cow No. 1.

Temperature before Injection 9 P. M.	Temperature after Injection.						
	A. M.	A. M.	A. M.	M.	P. M.	P. M.	P. M.
	6	8	10	12	2	4	6
101.4	105.0	105.4	106.0	106.2	106.6	104.2	103.2

* Report presented to the Genesee Valley Veterinary Medical Association, July 9, 1908, at Rochester, N. Y.

Cow No. 2.

Temperature before Injection 9 P. M.	Temperature after Injection.						
	A. M.	A. M.	A. M.	M.	P. M.	P. M.	P. M.
	6	8	10	12	2	4	6
102.4	102.0	101.2	101.4	101.2	101.0	100.2	101.0

On June 23d I subjected cow No. 1 to the tuberculin test, using 2 c. c. tuberculin prepared at the N. Y. State Vet. College. Cow No. 2 in the meantime had been sold and I lost trace of her. Following is the result of tuberculin test on cow No. 1:

Temperature before Injection 9 P. M.	Temperature after Injection.						
	A. M.	A. M.	A. M.	M.	P. M.	P. M.	P. M.
	8	10	12		2	4	6
102.2	104.6	105.2	105.2		106.0	105.0	104.8

As will be seen by comparing this with the temperatures after the injection of mallein there was in both instances a positive reaction. I condemned this cow and on June 25 she was slaughtered and on post-mortem examination showed well-marked lesions in post-mediastinal gland and left lung. The gland lesion being about the size of a croquet ball, and that of the lung about the size of a man's hand.

The results of this experiment leads me to doubt many things, and one is whether it is the specific products of the tubercle bacteria that causes the reaction in a tuberculous subject, and if this is so then why will mallein produce the same effect? Is it the close relation of the two bacteria, or would some other foreign matter injected into the system produce the same effect? These and many other questions might be asked and I could not answer them, and I think the subject is one that could be followed up with interest and profit to both practitioners of human and veterinary medicine.

Some of you gentlemen may have experimented some along this line; if so, I should very much like to hear the results obtained.

REMOVAL OF FOREIGN BODY FROM STOMACH OF DOG—RECOVERY.

By Drs. H. T. GAETZ AND E. L. VOLGENAU, BUFFALO, N. Y.

A fox terrier while at play swallowed a hollow rubber ball one and one-half inches in diameter. Brought to the writer four days after the occurrence of the accident, the owner stated that the dog had vomited about one hour after every meal since he had swallowed the ball. Gastrotomy was advised and performed on the following day. One hour before the operation the patient received one H.M.C. tablet (Abbott) hypodermically. Less than one drachm of ether was necessary for complete surgical anæsthesia. The abdomen was shaved, scrubbed with bichloride soap and washed with lysol solution, an incision two inches long made into the abdominal cavity and the ball easily located in the stomach. The stomach was drawn through the incision and an opening made large enough to remove the ball after it had been slit in several places to make it collapse. The opening in the stomach was closed by continuous catgut suture in two layers and the abdominal wound by one layer of interrupted silk sutures. The dog received nothing but water in small quantities for three days, after which time feeding was cautiously resumed. Complete recovery in thirteen days.

The writer has used the H. M. C. tablet in fifteen laparotomies in dogs with the greatest satisfaction to himself and with perfect safety to the patient. Only a small quantity of ether is necessary for complete anæsthesia, the animal does not fight the anæsthetic, rests quietly for three or four hours after the operation, has no post-operative nausea and practically no surgical shock.

TUBERCULOSIS IN LIONESS.

By A. G. COPPENBARGER, D. V. S., Muskogee, Okla.

On the evening of June 10, 1908, I was summoned by the Parker Amusement Company to see a lioness that had been failing for the past three months. I found the animal stretched out in the cage very much emaciated, respiration decidedly increased, her appetite had gradually been failing her from the time she

was first noticed ailing; for about the last thirty days she would eat sparingly one day and refuse food the next; she also refused milk, which was unusual for her; soon after eating the food in many instances it would be regurgitated. With what little history I had I diagnosed the case indigestion, and prescribed:

June 10, 1908.

R Tr. Nux Vomica...	} \overline{aa}	j5
Hydrochloric Acid..}		
Bismuth Subnitrate.....		ju5
Liq. Pepsin.....		ij5
Syr. Aurantium, g. s. ad.....		ju5

M. Sig.—Give tablespoonful morning, noon and night.

The medicine was given with a syringe by the attendant getting as near the cage as would be safe and drawing back as though he was going to strike her, when she would open her mouth, thus giving him an opportunity to give the medicine.

On the evening of the 12th I had an opportunity to hold a post-mortem examination, assisted by Dr. Warner Sidener. I was compelled to change my diagnosis to tuberculosis. The lungs were almost completely covered with nodules.

THE establishment of a school of sanitary science and public hygiene at Cornell University is announced.

At the meeting of the Veterinary Medical Association of New Jersey the Mayor of the Borough of Ramsay, Dr. J. B. Finch, exchanged greetings with Dr. R. T. Churchill, Mayor of the Borough of Secaucus.

BITTEN BY A HORSERADISH.—“And so Smithers died of hydrophobia?”

“Yes; poor chap!”

“How did it happen?”

“He put too much horseradish on his bologna and it bit his tongue.”—(*Chicago News*.)

A DUCK OF AN M. D.—Little Elmer—Mamma says you are a duck of a doctor.

Pompous M. D. (greatly pleased)—Indeed! How did she come to say that?

Little Elmer—Oh, she didn't say it just that way, but I heard her tell papa you were a quack.—(*Chicago News*.)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

VOMITION IN THE HORSE [*Robert Bryden*].—These are the records of three cases where vomiting took place and presented a great similarity in their manifestation. The vomiting occurred several times in succession and in every animal the same position was assumed as it was going to take place. This peculiar position was as follows: At various intervals the animal would stretch his fore legs well out in front, the cervical muscles spasmodically would contract causing the neck to become ewe-like in shape for a moment and then there was immediately following a faint shriek and the forcible ejection of gas and fluid in gеста through the nostrils. Of course, there were also more or less marked symptoms of colics. The two first cases were diagnosed as impaction and overloaded stomach and treated accordingly. The vomiting returned several times but both animals got well comparatively quick. In the third case, however, a diagnosis of rupture of stomach or of the bowels had been made. It proved fatal. However, at the post-mortem the stomach was found entire, and full of foul fluid and injeста similar to that thrown out by the nostrils during the vomition.—(*Veterinary Record*.)

REMOVAL OF THE PLACENTA IN THE MARE. HOW IT SHOULD BE DONE [*C. Cunningham, M. R. C. V. S.*].—The cleansing of a mare may in many cases be an easy job, but yet there may be some condition where one is quite embarrassed. The author has had recourse to a very simple method and although it may be known and commonly used, as he has never seen mention of it, he thought he would just speak of it, leaving to others the task to judge of its value. The process is simply this: "Leave the big bulk and big mass of the white or light colored placenta severely alone, go in search of the dark colored outer surface of the chorion and try by gentle traction of that membrane by itself to effect the end in view." The author relates three cases where he has obtained excellent and very rapid results. Some practitioners may know of this method and yet some may not or may have not put it into practice. Let them try it. To explain and

to illustrate, Mr. Cunningham says: "Called to a big black mare, 16.2 hands high or over, foaled ten hours or so, I found the membranes seemingly so firmly attached that I allowed two or three hours grace, and even then was likely to be nonplussed. Happening to see the dark colored detached margin of the chorion showing just within the labia, I said to myself: 'That is the chorion, the outer foetal membrane, the outer surface of which is closely applied to and connected with the inner lining membrane of the womb. Some of it got detached and if I pull gently at this detached portion alone and by itself I may succeed in detaching and bringing away the rest of this adhering membrane, and with it the whole placenta.' Acting on these lines, I pulled gently at the dark colored membrane only, found it giving an inch and then two inches, shifted my hold and went round about the detached circumference drawing quietly here and there. Soon the chorion showed as a sort of brownish night-cap, enveloping the whiter parts downward six, twelve, and eighteen inches and nearly two feet, when the force of weight came into play, and the whole mass fell with a flop between the mare's hocks and at my feet."—(*Veterinary Record*.)

HYDRONEPHROSIS IN THE DOMESTIC ANIMALS [*Gerald Leighton, M. D., F. R. S. E.*].—The author has already recorded one case of this trouble associated with congenital absence of the other kidney. He has seen since two other cases, one in a pig and one in a cow. The lesions are described as they were found in one of them, but they were very similar in all. However, in the pig the hydronephrosis was double. In all there were lesions of chronic cystitis. The author considers that the causes that give rise to those conditions may be divided into two groups and those whether being responsible for unilateral or bilateral hydronephrosis can be arranged as follows: As *Unilateral Causes* are those where there is obstruction to the outflow of urine situated above the point of entrance of the ureter into the bladder, such as deformity of ureter, occlusion, contraction, twist, kink, calculus impacted, pressure of pelvic tumour, pelvic scar tissue, uterine displacements, pregnancy. *Causes acting in bilateral hydronephrosis*, those where there is obstruction below the points of entrance of the ureters into the bladder, such as any vesical or urethral obstruction, usually incomplete, calculus in bladder or urethra, enlarged prostate, pressure of tumours, stricture, chronic cystitis.—(*Journ. of Compar. Pathol and Therap.*)

ABSCESS OF THE INTERNAL EAR IN A MULE [*Ferguson Stirling, M. R. C. V. S.*].—A mule said to have had an abscess of the external ear, had the conchal and annular cartilages slit in a fearful manner and the ear was packed by the owner with axle-grease and cotton wool pushed in as far as possible. Shortly after, the animal exhibited serious symptoms. He has lost a great deal of the normal control of his movements and goes along in a peculiar uncertain staggering way. He has the high-stepping action of the sheep suffering with gid, when the parasite is situated near the cerebellum. He soon becomes comatous, and, notwithstanding treatment, dies in ten hours. Blood, pus and axle-grease are found in the middle ear and also in the guttural pouches.—(*Veterinary Journal.*)

SOME CANINE CLINICAL NOTES [*F. Hobday, F. R. C. V. S. and Edgar Belcher, M. R. C. V. S.*].—1st. Malignant tumour. A nine-year-old St. Bernard bitch had a growth on the right knee, which increased rapidly and necessitated amputation, as it was of malignant nature. It was a sarcoma. The dog got well and was comfortable with an artificial leg. Four weeks after she had pneumonia, began to get over that when she presented peculiar symptoms. Having great appetite, and eating one pound of meat every day she kept loosing flesh until she was but "a bag of bones." Soon a nodule appeared in one mammary gland, this enlarged rapidly. And then the bitch had paroxysms of pains when she would cry out as if in great agony. She was destroyed. Sarcomatous growths were found in the lungs and also in the mammary gland.

2d. Carcinoma of the œsophagus in aged fox terrier. He had always been in good health until the time he began to feed poorly and looked dull. Then he vomited occasionally. Gastritis was suspected and he was treated accordingly. The dog kept getting weaker and then presented a swelling about the middle of the throat. Supposed it was a bone. The swelling got as big as a Tangerine orange and made the dog hold his head to the right. Usually snappish to strangers, the dog is now quiet and gave no evidence of pain on pressure over the swelling. There was no salivation, nor bad odor from the mouth. The swelling was irregular, rough and quite movable under the skin. On manipulation it gave the idea of being attached to the œsophagus. Cancerous growth was diagnosed and the dog destroyed. At post-mortem the swelling was found involving some of the vol-

untary muscles and extended to the membrane lining the œsophagus. It was cancerous, no doubt of the squamous-celled variety.

3d. ASCITES FOLLOWED BY CARCINOMA OF THE PHARYNX AND CERVICAL GLANDS.—Skye terrier, 12 years old, had abdominal dropsy and was placed under iodide of potassium. A few months later nine pints of straw-colored fluid are taken off from the abdomen. The dog remains in good health for three months, when he became delicate in his appetite and looked as having sore throat. In that region there is found a subcutaneous movable tumour as big as a chestnut. Carcinoma is suspected and confirmed by the condition of the mucous membrane of the throat examined with the mouth kept open with a speculum. Microscopic examination revealed also the nature of the tumour.—(*Veterinary Journal*.)

THREE CASES OF PROLAPSUS OF THE BOWEL; AMPUTATION; PROCTOPEXIA [*by the Same*].—In the first case, a piece of the bowel had been excised after first suturing the healthy part to the anal ring. Death occurred after twenty-four hours from gangrene of the bowel.

In the second, the bowel was returned but as it could not be kept in place, notwithstanding cold astringent injections of tannic acid, a purse-string suture was resorted to. Removed after five days, the prolapsus returned and finally the dog died with intestinal complications.

In the third case, the prolapsus was at first easily reduced and remained in place. The animal was sent home. After three days the trouble returned. Again it was reduced but without success. After trying several times and always failing, it was decided to resort to the operation of Gersuney. But this was also followed with a bad result. Then laparotomy was performed and proctopexia carried out with a perfect success. A month after the operation the dog was still in perfect condition and had no difficulty in defecating.—(*Veterinary Journal*.)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

EXOPHTHALMIA DUE TO THROMBOSIS OF A CAVERNOUS SINUS IN A HORSE; SUDDEN DEATH [*Baillart, Babb and Grollet*].—A rare case, none similar on record. Stallion of six years, has had

three attacks of severe pneumonia. A month after the last has severe colics which were followed by another two days later. The evening of that day the right eye was swollen, the eye lids are tumefied, closed and painful, the conjunctiva are congested and the cornea is yet transparent. Traumatism is suspected and warm applications of camomile decoction are prescribed. The next day, the animal having refused his food, the right eye is about entirely out of the orbit. It is surrounded with thick swollen conjunctiva. The region is the seat of wide œdema, the sub-orbital fossa has made room to a convexity. The cornea is translucid. The left eye begins to be affected. Suspecting a retro-orbital abscess, an exploring puncture is made but no pus is found. The skin over the seat of the sub-orbital fossa is incised, some adipose tissue of the fossa is removed but no pus is found. Warm lotions are applied. The conditions are worse the next day and the question whether the eye is to be removed or not is put to a consultation. It is decided to wait until the next day. The horse dies suddenly during the evening.

Post-mortem—No pus was found but instead an abundant hemorrhage between the eyes. First stage of meningitis in the anterior region of the brain. The optic nerves are normal at the chiasma, the pituitary gland is congested and as big as a hazel nut. The frontal sinuses contained a certain quantity of fluid. The optic nerve is surrounded with a clot of blood. Perineurium has an hemorrhagic tinct. This hemorrhage comes from the venous branch which unites the sub-sphenoidal confluent to the cavernous sinus, probably the seat of phlebitis, sequelae of the inflammation of the frontal sinus.—(*Rev. de Pathologie Comparee.*)

OPEN WOUND OF THE ANTERIOR CHAMBER OF THE EYE; RECOVERY WITH PULVERIZED BORIC ACID [*Lacassagne, Army Veterinarian*].—A horse has the right eye closed, the lids much swollen. The ocular globe is red all over and presents a vertical fissure, about three centimeters in length which is partly closed by a clot of coagulated aqueous humour. There is also escape of a sero-bloody liquid. Ophthalmoscopic examination is not possible, the animal does not see with that eye. After washing the part with tepid salt water, boric acid finely pulverized was insufflated in the eye. Soon abundant lachrimation takes place, accompanied with escape of serosity. In the afternoon the eye is less painful and the animal resists less to a second insufflation. After each of these the membrana nictitans passing over the globe of the eye spreads the acid all over. This treatment was renewed

the next day with three insufflations and kept up for two weeks when the wound of the eye was entirely closed. Some granulations, however, had to be cauterized with nitrate of silver. The animal resumed his work after twenty-six days of treatment with perfect sight and a very slight blemish of the eye.—(*Rec. de Medec. Veter.*)

TREATMENT OF SERO-BLOODY COLLECTIONS WITH INJECTIONS OF PURE TINCTURE OF IODINE [*M. M. Cadix and Pineau, Army Veterinarians*].—The authors have resorted to that treatment very extensively for tendinous cysts, windgalls and thorough pins as well as for sero-bloody cysts and gatherings. Their *modus operandi* is as follows: The region situated below the most prominent point of the swelling being well aseptized, a puncture is made with the large needle of the Syringe of Pravaz and about one-third of the liquid contained in the tumour is removed. Then, according to the size of the collection, from one to four grammes of pure tincture of iodine is injected, insuring its thorough dilution and contact with the walls of the cavity by massage. If as it some times occurs, there is an œdematous swelling of some importance round the sero-bloody tumour, before making the injection, an astringent application (clay, carbonate of lime, sulphate of iron and vinegar) is applied over it. Very rapidly after the operation there is a marked increase in the size of the tumour. This remains for six or eight days and then the resorption of the liquid begins and is complete in fifteen days or perhaps a little longer if the region is exposed to rubbings. Several cases are recorded where most satisfactory results have been obtained.—(*Rec. de Medec. Veter.*)

DEEP WOUND OF THE FOOT; ARTHRITIS; RECOVERY [*Mr. Arnoux*].—Simple record of a rather serious injury that a three-year-old filly received while running out to grass. The horse put her foot on a stump of wood which entered deeply through one of the lateral lacunae of the frog and then broke off, leaving a part of it in the foot. Excessive lameness, of course, followed although the fragments of wood were extracted as well as possible. After a few days the animal was on three legs. The case was evidently one of very severe nature when the author was called. A very deep wound of the foot, an immediate operation is imposed and is at once performed. Little pieces of wood are removed, the small sesamoid bone had to be curetted, the periosteum is diseased, synovia escapes, the second phalangeal joint

is open. Repeated injections of pure oxygenated water are made, the wound cleaned with sublimate solution, dusted with iodoform and a dressing applied. Notwithstanding the severity of the interference, the animal got well and after six weeks could be considered thoroughly cured. However, a week later the lameness returned, a fistulous tract reopened and several pieces of wood were again extracted besides those that escaped with the discharge. A similar result followed an appropriated treatment. But again another abscess formed at the coronet. This was treated again and followed by another and final recovery. The animal had been laid up three months.—(*Rece. de Medec. Veter.*)

EFFECTS OF LIGHTNING ON A FILLY [*Mr. Fafin*].—She was found dead the day after a severe storm. She had fallen in a ditch, at the foot of a tree and had a peculiar position. Seated on her hocks, the hind legs under her abdomen, the fore limbs half flexed, she seemed to be asleep. The neck was slightly bent to the right, and the head resting with her nose on the ground. There was a fine stream of blood oozing from both nostrils. Post-mortem: The skin removed showed the connective tissue and the superficial muscles as being of a red wine color. The muscles look as if they were cooked. Through them in the back was found a piece of the vertebral column which is absolutely loose. Measuring 10 centimeters in length, it is situated a little back of the withers, and is surrounded by a clot of black blood and muscular detritus. The whole of that region looks like an anthrax tumor. Then the electric spark must have divided in several directions. Backwards and downwards it has torn the abdominal muscles, an enormous clot of blood is spread over the large intestine which, however, is not torn. The lungs are mashed in many pieces, the sub-scapular muscles are black. A muscular laceration situated a little in front of the scapula is covered by the skin which presents only a small hole not larger than a pencil. There was also marks of the passage of another spark. In reaching the head it had again divided and one branch had gone and burnt the right parotid, while another had gone to the nostrils, where it lost itself in the earth, as indicated by the position of the head of the animal when it was found in the ditch.—(*Semai. Veter.*)

GASTROTOMY TO EXTRACT FOREIGN BODY FROM THE RUMEN [*M. Leon Baby*].—A fine two-year-old heifer, five months in calf, presents under the abdomen a little back of the sternum, a

sharp piece of iron, which is running through the skin. It is the point of a harnessmaker's punching needle that had been missed for two months, and that the cow had swallowed, 21 centimeters long and carrying a handle which measures three centimeters in diameter, it requires an incision of some dimension to be removed, at the spot where it projects. And as there might be possibility of an eventration and of an extravasation of the intestinal contents into the peritoneum, gastrotomy was resorted to. The left flank disinfected, the rumen exposed and open, the inferior edge is secured to the skin with Pean's forceps and the arm introduced, the foreign body was readily removed. Sutures of the walls of the rumen, then of the parietal peritoneum, of the muscles and finally of the skin ended the operation which was followed by complete recovery in seven days.—(*Progrès Veteri.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

SUDDEN DEATH AFTER REPOSITION OF THE PROLAPSED UTERUS [*Dr. Lazanto*].—In the case of a cow which had calved normally, the uterus being prolapsed, it was apparently uninjured, and after a thorough washing and disinfecting, was replaced. A few minutes later, the cow, which was still laying down, looked anxious, began to tremble, became weaker and had an intermitting pulse. Soon muscular spasms and convulsions set in, which announced approaching death. Natural death was averted, the animal was slaughtered. The author is now of the opinion that an air embolism from the uterus was the cause of the severe symptoms mentioned. There was no information obtained as to the result of the postmortem examination.—(*Allatorvosi Lapok*, 1907, S. 327.)

THE PRACTICAL VALUE OF THE OPSONIC INDEX.—[*Dr. Saathoff, from the II Medical Clinic in Munich*].—The main points of Wright's theory with reference to the opsonic power of the blood serum are summed up in the following brief sentences:

First—In the serum of the normal blood elements are present; the opsonines, which affect the invading bacteria to the extent that they are taken up by the leucocytes and eventually destroyed.

Second—In certain diseases, and particularly in all chronic infections, the resisting power of the blood is lowered against the

bacteria present, which is manifested in a lowering of the opsonic index. Reversely, we can conclude from this that a lowering of the opsonic index indicates the presence of an infection.

Third—As is demonstrated in the foregoing sentences it becomes necessary in the treatment of infectious diseases to raise the opsonic power of the blood. This is accomplished by subcutaneous inoculations of the specific micro-organism in a devitalized condition, whereby specific reacting bodies are formed in the serum of the character of the opsonines which in turn raises the opsonic index.

The author had subsequently verified the results of Wright's experiments relative to the clinical value of this method and appends his conclusions as follows: First, on account of the complex and extremely difficult technique, this method can only be applied in certain institutions where it is possible to maintain an investigator, consequently this detracts considerably from its value. Second, on account of the innumerable sources of error which arise in establishing the opsonic index, the method is applicable only in very rare cases, or where the case at issue is of extreme importance. Third, in its therapeutic application the opsonic index for the reasons just stated is an untrustworthy agent. With regard to the value and further development of active immunization, it remains unconsidered.—(*Münchener Medizin. Wochenschrift*, 55, Jahr., 1908, No. 15, S. 779.)

THE OPSONINE OF MODERN THERAPEUTICS [*Dr. Piorkowski*]
—After describing the technique for the application of Wright's opsonine method in human medicine, which has been successful in many cases in England, but only now is gaining a foothold in Germany, Piorkowski publishes in his laboratory experiments the results of his investigations concerning the opsonines of the specific organisms of swine pest, pneumonia, dysentery of calves. The opsonines correspond in all appearances to the antroceptors of Ehrlich and are obtained in this way: They are derived from cultures of specific pathogenic organisms which are destroyed at a temperature of 56 degrees C, and are emulsified in a physiological salt solution and freed from germs. Naturally an abundant polyvalence predominates as laboratory experiments and experience in practice has proven. For immunizing purposes subcutaneous injections of the extract is sufficient, which is used simultaneously with the specific sera. As a curative agent the bacterial extract alone is sufficient. If the mother animal is inoculated at

the proper time, she transmits immunity to her offspring.—(*Deutsche Tier. Wochenschrift*, No. 11, 1908.)

THE COMPOSITION OF SOME SECRET REMEDIES.—The well known powder (Poudre Uterine de Roux), is a greenish powder composed of the herb artemesia and ruta graveolens of each 60 grams, inula helenium, 20 grams; camphor and sodium chloride, of each 10 grams.

Birkmore's wound cure is a sulphur borax ointment, colored with indigo blue, and is used extensively in horse and cattle practice.

Bovino contains ground St. John's bread, starch, lentil, millet, rice, corn and various kinds of husks.

Blood meal is composed of dried animal blood and turf mould. It should be mixed with molasses before being used.

Harlem oil consists of 50 grams of oil of turpentine, 35 grams sulphurated linseed oil, 15 grams of sulphur.

Grape nuts are roasted wheat and barley which had previously been slightly malted.

Cattle powder is composed of rad, althaeae, juniperi communis, rad, gentian, sulphate of magnesia, black antimony sem, foenugreek.

Canine Antipourine or Furunculine is formed of dried yeast cells with a large percentage of potato starch added. Its action is decidedly weakened as a result of drying and is in every way inferior to the fresh yeast cells.

St. Jacobs Balsam represents 27.0 of oil of cacao, 60.0 of oil sesami, 3.0 of phenol, 10.0 oxide of zinc.

Jerusalem Balsam is compound tincture of benzoin.

Balsamic Creasote Liniment is composed of potassium iodide dissolved in Hoffman's balsamic mixture with spirits of lavender added.

Eythymol is a mixture of eucalyptus, thymian, oil peppermint, oil wintergreen and boracic acid in alcohol.

Germicidal soap is a blue soap for disinfecting purposes, containing Berlin blue and iodide of mercury.

Special Food—This food is advertised extensively at the present time and is naturally of American origin. It contains oat hulls, oat bran, wheat bran and barley hulls.

The well known and expensive naphthalan is nothing more than 95 per cent. purified raw naphtha, with 5 per cent. neutral soap added.

Dr. Waites' local painkiller contains cocaine and creosote, dissolved in glycerine and water.

Liquid insecticide contains soap and nicotine in solution and perfumed with oil of melissa.

Mouse-virus is a culture of the bacillus of mouse typhoid grown on nutrient agar.—(*Berliner Tier. Wochenschrift*, No. 20, May, 1908.)

THE TREATMENT OF SUMMER SORES [*In the Brussels Annals of March*, 1907].—Prof. Lineaux writes concerning these peculiar sores which appear only in the summer in particular parts of the body and disappear spontaneously toward the end of the year. They are surgically characterized in that they are covered with flesh-like nodes about the size of a millet seed to a pea, with a fibrous wall and containing yellowish, cheesy or calcareous matter. These sores are difficult to heal. The lesions of this nature are also known by the name *Dermatitis Granulosa*. They reappear the next summer. Their origin is said to be due to the penetration of parasites into the deep tissues of the skin. However, we are not aware of the exact manner of invasion and we believe that the parasite is the larvae of a nematode, the *Filaria irritans*. According to Megnin and others it might be the larva of the *Oxyuris equi* or simply the stings of insects (flies).

Laulanié, and later Huguier, according to the *Revue Veterinaire*, are of the opinion that the sores originate from the subcutis after the eggs of the filaria have gained access to the body with the food. The animals are irritated as a result of the intense itchiness of the wounds during the whole summer, they scratch continuously and soon become emaciated. As a result of the abundant suppuration in the sores this *Filariasis cutanea aestivalis* is very difficult to heal. The principal topical remedies, such as camphor, the iodine preparations and the like are useless, even when deeply injected. Roger, a French military veterinarian, advises surgical procedure, and he further believes we have to deal with the wandering embryos of the oxyuris, which are difficult to reach on account of their being buried deeply in the tissues. According to Lineaux, white arsenic is the ideal remedy, as it reaches the deeper tissues when mixed with equal parts of an inert powder and made into a paste. On account of the continuous wound secretion, the remedy adheres only when the surface is carefully dried before each new dressing is applied. After repeated applications a thin scab forms after

which pruritis disappears and cicatrization begins. During this procedure the sores must be protected by a covering of absorbent cotton and collodion, and the surrounding skin should also be protected from corrosion by the liberal use of vaseline. (According to the *Revue Veterinaire*, Roger cured horses belonging to the Brussels Tram Car Company in a short time by energetic washings of carbolized potassium soap [1-2%] two or three times daily every other day, and afterwards dusting on sublimed sulphur. Internally he administers purgatives and gives in the meantime internally arseniate of iron, which is borne better in large doses than white arsenic).—(*Deutsche Tier Wochenschrift*, No. 27, 1907.)

THE RESULTS OF MODERN INVESTIGATIONS REGARDING CANCER [*Dr. A. Sticker, Berlin*].—The last few years have brought to light many remarkable facts in the domain of cancer research that it is now possible to obtain certain facts concerning the nature and origin of cancer. Sticker discusses briefly the results of the clinical and patho-anatomical investigations and expresses himself more in detail concerning the results of the experimental investigations, concluding his treatise as follows: The most important results of modern cancer research are that histologists, clinicians and experimentors agree that the real nature of cancer is due to a proliferating, parasitical body cell which may reach various parts of the body by metastases from a primary tumor or from exterior sources it may gain access to a body hitherto free from tumors. How one body cell can become parasitic has not been determined by experiment nor by theoretic conception. The assumptions of Sticker that in every case of tumor formation we have to deal with an implantation of cells peculiar in themselves, but foreign to the body. Further, the opinion of V. Leyden-Bergell, who says that the unlimited growth of these cells being due to a lack of hydrolytic-ferment power permits of the origin of cancer being best understood.—(*Zeitschrift für Veterinar Kunde*, S. 427, 1907).

NOTED foreign investigators will attend the Philadelphia meeting.

NEW YORK'S Zoological Park, in the Bronx, contains the largest collection of any park in the world. It has more than 4,000 specimens of beasts, birds and reptiles.

REPORT AND RECOMMENDATIONS REGARDING VETERINARY COLLEGES.*

The Honorable the Secretary of Agriculture:

SIR—The committee appointed by you for the purpose of obtaining information regarding the course of instruction which is now being given at the various veterinary colleges throughout the United States has the honor to submit herewith its report. Recommendations are also made as to the matriculation examination and course of instruction necessary to qualify graduates for admission to the civil-service examination for the position of veterinary inspector in the Bureau of Animal Industry.

RICHARD P. LYMAN, *Chairman,*
Secretary of the American Veterinary Medical Association.

JOSEPH HUGHES,
President of the Chicago Veterinary College.

TAIT BUTLER,
Secretary of the Association of Veterinary Faculties and
Examining Boards of North America.

PAUL FISCHER,
State Veterinarian of Ohio.

A. M. FARRINGTON, *Secretary,*
Assistant Chief, Bureau of Animal Industry.

OBJECTS OF INVESTIGATION AND REPORT.

Inasmuch as over 800 veterinarians are employed by the Department of Agriculture in the various kinds of work conducted by the Bureau of Animal Industry, it is of the utmost importance that these men be well equipped by thorough education to fill such positions of responsibility. Although it is understood that applicants for these places must not only pass a civil-service examination but be graduates of veterinary colleges having a course of three years, observation has shown that the standard of attainment in the various veterinary colleges is not uniform, and that veterinary graduates are not in all cases properly qualified for the positions they are expected to fill. It was therefore deemed advisable to seek to improve, if possible, the course of instruction given at these colleges, and, at the suggestion of Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, the Secretary of Agriculture appointed a committee of five reputable veterinarians to visit the veterinary colleges throughout the United States in

* Bureau of Animal Industry Circular 133, issued July 6, 1908.

order to gain definite information regarding their equipment and facilities for teaching, and also to indicate to the Department the necessary matriculation examination and course of instruction to qualify graduates for admission to the civil-service examination.

ORGANIZATION AND PROCEDURE OF THE COMMITTEE.

In accordance with these instructions the above-mentioned Committee on Veterinary Education, composed of Dr. Richard P. Lyman, secretary of the American Veterinary Medical Association; Dr. Joseph Hughes, president of the Chicago Veterinary College; Dr. Tait Butler, secretary of the Association of Veterinary Faculties and Examining Boards of North America; Dr. Paul Fischer, state veterinarian of Ohio, and Dr. A. M. Farrington, Assistant Chief of the Bureau of Animal Industry, assembled at the Palmer House, Chicago, Ill., on February 27, 1908, and organized with the selection of Dr. Lyman as chairman and Dr. Farrington secretary. The first business receiving attention was to formulate a definite plan whereby the desired information regarding each college might be obtained. The committee decided upon the method of procedure outlined under the eleven heads following:

1. Secure all published information; (a) catalogues, (b) advertising, (c) blank forms or other printed matter used in instruction or other college work.
2. Name of veterinary institution; (a) charter.
3. Location; street; place or places where instruction is given.
4. Date of organization; history.
5. Requirements for entrance:
 - (a) Standard of matriculation.
 - (b) Dates of holding matriculation examinations.
 - (c) Latest dates students are admitted after opening of regular session.
 - (d) Basis on which students are admitted from other schools:
 1. Veterinary.
 2. Medical.
 3. Dental.
 4. Pharmaceutical.
 5. Agricultural.
 - (e) Number of students now in attendance from such schools.
 - (f) Name of schools or colleges from which admitted.
 - (g) Total enrollment by classes.
6. Teachers and lecturers; their history, and the subjects they teach.
7. Curriculum:
 - (a) Obtain a list of subjects embraced in curriculum.
 - (b) Number of hours devoted to each subject, and how taught.
 - (c) Laboratory.
 - (d) Clinics.
 - (e) Lectures.
 - (f) Recitations.

8. Length of course:

- (a) In years.
- (b) Time each year.
- (c) Amount of teaching during day and during evening.
- (d) As to grading of course.
- (e) Length of sessions for each class.
- (f) Number of days teaching each week.
- (g) Number of teaching hours each day.
- (h) Frequency of roll call.
- (i) Length of vacation and number of holidays during the year.

9. Examinations and graduation:

- (a) Frequency of examinations.
- (b) Basis on which diploma is given.
- (c) Manner of conducting final examinations:
 - 1. Oral.
 - 2. Written.
 - 3. Practical.
- (d) Percentage of senior students failing to pass final examinations.

10. Diplomas and certificates:

- (a) Kinds of degrees, certificates, or diplomas issued.
- (b) As to a post-graduate or other kind of special course.
- (c) Dates on which diplomas are issued.

11. Sources of revenue:

- (a) Fees from students for each course of study.
- (b) Endowment.
- (c) Annual appropriations.

In addition to the above the following list of questions was formulated to be left with the dean of each college, and later to be filled out and forwarded to the committee:

- 1. Give a list of the subjects embraced in the curriculum of your college.
- 2. Give the number of hours spent in lectures by the freshmen, juniors and seniors on each subject in each class during each session.
- 3. Give the number of laboratory hours spent by the freshmen, juniors and seniors on each subject in each class during each session.
- 4. Give the number of clinical hours given to the freshmen, juniors and seniors in each subject in each class during each session.
- 5. Give the names of veterinary, medical, dental, pharmaceutical, and agricultural graduates or students who have been admitted to your college during the past session from other colleges and who have been given credit or allowance at your school; also give the names of colleges from which they have been admitted and the amount of credit which they have been given; also state at what period of the session they have been received into your college.
- 6. Give list of students who left your college last session, 1906-7, without completing the course or without credentials; also give a list of the students who have left your college this session, 1907-8, without completing the course and without credentials.
- 7. Give a full list of the students enrolled in the (1) freshman, (2) junior, and (3) senior classes during the present collegiate year.

COLLEGES VISITED.

An itinerary for visiting the various colleges was next arranged and carried out as follows:

The committee began its investigation with the McKillip Veterinary College, 1639 Wabash avenue, Chicago, Ill., on February 28, 1908, and the Chicago Veterinary College, 2537 State street, in the same city, on February 29, 1908. Visits to colleges in other cities were then made in the following order: Grand Rapids Veterinary College, Grand Rapids, Mich., March 2, 1908; Cincinnati Veterinary College, Cincinnati, Ohio, March 3, 1908; Ohio State University, College of Veterinary Medicine, Columbus, Ohio, March 4, 1908; Indiana Veterinary College, Indianapolis, Ind., March 5, 1908; St. Joseph Veterinary College, St. Joseph, Mo., March 7, 1908; Western Veterinary College, Kansas City, Mo., March 9, 1908; Kansas City Veterinary College, Kansas City, Mo., March 10, 1908.

At this time one member of the committee returned home, the others proceeding to the Kansas State Agricultural College, Veterinary Department, Manhattan, Kan., reaching that college on March 11, 1908. At this place another member of the committee returned to his home, leaving the remaining three members to visit the Colorado State Agricultural College, Veterinary Department, Fort Collins, Colo., March 13, 1908; the San Francisco Veterinary College, San Francisco, Cal., March 17, 1908; the State College of Washington, Veterinary Department, Pullman, Wash., March 21, 1908, and the Iowa State College, Veterinary Department, Ames Iowa, March 25, 1908.

The sub-committee of three members designated to visit the eastern veterinary colleges convened in New York on April 11, 1908, visiting the New York American Veterinary College, New York, N. Y., on that day. Following this the New York State Veterinary College, Ithaca, N. Y., was visited on April 13, 1908; the Ontario Veterinary College, Toronto, Canada, April 15, 1908; the University of Pennsylvania, Veterinary Department, Philadelphia, Pa., April 17, 1908, and the United States College of Veterinary Surgeons, Washington, D. C., April 21, 1908.

A report embodying the information obtained from each college as to the manner in which it is conducted is filed as an appendix. This is arranged in a series of exhibits, one for each college, in which are set forth the criticisms of the committee upon the conditions found. It is suggested that these findings be

sent to the colleges named, in order that they may conform to the recommendations made by this committee.

The entire committee reconvened at the Department of Agriculture, Washington, D. C., April 20, 1908, and concluded its duties by submitting the recommendations next following, in which is specified the minimum course of instruction which it considers necessary that veterinary graduates eligible for the position of veterinary inspector in the Government service should receive; also recommendations regarding methods of teaching, etc.

RECOMMENDATIONS.

Entrance Examination.

RECOMMENDATION NO. 1—*Matriculation*.—That a matriculation examination be adopted, the minimum requirements of which shall be equivalent to the second-grade examination as published in the United States Civil Service Manual of Examinations, supplemented by United States history and geography of the United States and its possessions. Such an examination will therefore include:

1. Spelling.
2. Arithmetic.
3. Letter writing.
4. Penmanship.
5. Copying from plain copy.
6. United States history.
7. Geography of the United States and its possessions.

RECOMMENDATION NO. 2—*Dates of holding matriculation examinations*.—That the entrance examination shall be conducted on one or more specifically advertised dates under the supervision of the dean, director, or, in case of state institutions, by the official examining board. That the last entrance examination shall be held not later than fifteen days subsequent to the advertised annual opening of the college year, and no time credit shall be allowed to students admitted after that date.

RECOMMENDATION NO. 3—*Filing of matriculation examination papers*.—That the questions and answers of both successful and unsuccessful applicants shall be kept on file by the institution for at least five years subsequent to the examination of the applicants.

RECOMMENDATION NO. 4—*Grading of matriculation examination papers*.—That applicants shall be graded upon a basis of 100 per cent., and that a grade of not less than 70 per cent. shall qualify for admission.

Course of Study.

RECOMMENDATION No 5—*Subjects constituting course of instruction.*—That the appended list of subjects constitute the course of instruction recommended as a minimum for veterinary colleges. Those numerically indicated shall be known as the major subjects, and those designated by letters shall be under the control of the professors in charge of the respective major subjects with which they are grouped.

1. Anatomy:
 - (a) Histology (veterinary).
 - (b) Zoology (veterinary).
 - (c) Embryology.
2. Physiology:
 - (a) Principles of nutrition.
 - (b) Hygiene.
 - (c) Animal locomotion.
3. Zootechnics:
 - (a) Breeds and breeding.
 - (b) Judging.
 - (c) Feeds and feeding.
 - (d) Dairy inspection.
 - (e) Jurisprudence.
4. Chemistry:
 - (a) Elementary physics.
 - (b) Physiological chemistry—analysis of milk, urine, etc.
5. Materia medica:
 - (a) Botany (medical).
 - (b) Pharmacology.
 - (c) Toxicology.
6. Pathology:
 - (a) Bacteriology.
 - (b) Parasitology.
 - (c) Post-mortem examination.
 - (d) Meat inspection.
 - (e) Laboratory diagnosis.
7. Practice of comparative medicine:
 - (a) Diagnostic methods and clinics.
 - (b) Therapeutics.
 - (c) Control of infective diseases.
8. Surgery:
 - (a) Surgical diagnosis and clinics.
 - (b) Surgical restraint.
 - (c) Soundness.
 - (d) Lameness.
 - (e) Shoeing and balancing.
 - (f) Dentistry.
 - (g) Obstetrics.

RECOMMENDATION No 6—*Length of course.*—That the course of instruction shall cover a period of three years of not less than six months in each year, exclusive of final examinations

and holidays; and that this course of instruction shall have as a minimum 150 days in each year of actual teaching and a minimum of 3,200 actual teaching hours for the entire three years.

RECOMMENDATION No. 7—*Minimum number of hours in course:*

Anatomy, major subject:

Lectures	200	
Laboratory	300	
Total		500
Histology:		
Lectures	40	
Laboratory	100	
Total		140
Embryology:		
Lectures	10	
Laboratory	20	
Total		30
Zoology:		
Lectures	20	
Laboratory	20	
Total		40
Total for subject.....		<u>710</u>

Physiology, major subject:

Lectures	80	
Laboratory	20	
Total		100
Principles of nutrition.....	10	
Hygiene	10	
Animal locomotion.....	5	
Total		25
Total for subject.....		<u>125</u>

Zootechnics, major subject:

Breeds and breeding.....	30	
Judging	30	
Feeds and feeding.....	30	
Dairy inspection.....	10	
Jurisprudence	10	
Total for subject.....		<u>110</u>

Chemistry, major subject:

Lectures	50	
Laboratory	150	
Total		200

Physics (elementary).....	20
Physiological chemistry:	
Urine analysis.....	10
Milk analysis.....	10
Total	20
Total for subject.....	240
Materia Medica, major subject:	
Lectures	70
Pharmacology, lectures and laboratory.....	50
Botany	30
Toxicology	10
Total for subject.....	160
Pathology, major subject:	
Lectures	40
Laboratory	100
Total	140
Bacteriology:	
Lectures	20
Laboratory	90
Total	110
Parasitology:	
Lectures	50
Laboratory	10
Total	60
Post-mortem examination.....	10
Meat inspection.....	50
Laboratory diagnosis.....	50
Total for subject.....	420
Practice of Comparative Medicine, major subject:	
Lectures	250
Diagnostic methods and clinics.....	400
Therapeutics	100
Control of infective diseases.....	25
Total for subject.....	775
Surgery, major subject:	
Lectures	100
Surgical exercises.....	80
Total	180
Surgical diagnosis and clinics.....	300
Surgical restraint.....	30
Soundness	20
Lameness	50
Shoeing and balancing.....	10
Dentistry (lectures).....	20
Obstetrics	50
Total for subject.....	660

Recapitulation.

Total hours for Anatomy group.....	710
Total hours for Physiology group.....	125
Total hours for Zootechnics.....	110
Total hours for Chemistry group.....	240
Total hours for Materia Medica group.....	160
Total hours for Pathology group.....	420
Total hours for Practice of Comparative Medicine group.....	775
Total hours for Surgery group.....	660

Total hours, three-year course.....	3,200
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RECOMMENDATION No. 8—*Grading of course.*—That the course shall be graded in such manner as to avoid unnecessary repetition of lectures or instruction to the same student. For example, a student, while freshman, should be required to complete a definitely outlined course in such subjects as anatomy, histology, chemistry, etc. When advanced to the junior class he should either drop the studies of his freshman year and take up new work, or he may continue the same subject; for example, anatomy, along advanced lines of instruction.

RECOMMENDATION No. 9—*Night classes.*—That the practice of certain veterinary colleges in conducting regularly scheduled classes of instruction at night for all or a part of their students, to the exclusion of or in lieu of work which could be better done during the day, is inimical to the best educational work, and therefore should be discontinued.

Faculty.

RECOMMENDATION No. 10—*Number of veterinarians.*—That there shall be at least five qualified veterinarians on the faculty of every veterinary college, each of whom shall have had not less than three years' experience in teaching or in practicing veterinary science subsequent to graduation from a veterinary college.

RECOMMENDATION No. 11—*Qualification of teaching veterinarians.*—That not more than three of the five veterinarians on each college faculty shall be graduates of any one veterinary college.

RECOMMENDATION No. 12—*Subjects taught by veterinarians.*—That five veterinarians on the faculty of each veterinary college shall have charge of and teach the following major subjects: 1, Anatomy; 2, Pathology; 3, Practice of Comparative Medicine; 4, Surgery, and 5, Materia Medica or Physiology, as the respective colleges may elect.

General Recommendations.

RECOMMENDATION NO. 13—*Classification of veterinary colleges.*—That the following classification of veterinary colleges be adopted:

Class A:^a

Chicago Veterinary College.
 Indiana Veterinary College.
 Iowa State College, Veterinary Department.
 Kansas City Veterinary College.
 Kansas State Agricultural College, Veterinary Department.
 New York-American Veterinary College.
 New York State Veterinary College.
 Ohio State University, College of Veterinary Medicine.
 San Francisco Veterinary College.
 State College of Washington, Veterinary Department.
 University of Pennsylvania, Veterinary Department.

Class B:^b

Cincinnati Veterinary College.
 Grand Rapids Veterinary College.
 McKillip Veterinary College.
 United States College of Veterinary Surgeons.

Class C:^c

Colorado State College of Agriculture and the Mechanic Arts, Veterinary Department.
 Ontario Veterinary College.
 St. Joseph Veterinary College.
 Western Veterinary College.

RECOMMENDATION NO. 14—*Evidence of attendance.*—That at the end of the college year each student is entitled to and shall receive a written statement giving the length of time spent in each study during the session, and the grade received therein.

^a Colleges whose graduates are recommended in this report as eligible to United States civil service examination for veterinary inspectors in the Bureau of Animal Industry.

^b Colleges whose graduates have been allowed to take the United States civil service examination subsequent to 1898, but are not recommended in this report.

^c Colleges having no graduates or whose recent graduates are not eligible to the United States civil service examination, and are not recommended in this report.

This statement, or definite evidence of credit, shall be exacted from a student before he is given advanced standing in any veterinary college.

RECOMMENDATION NO. 15—*Transfer of students.*—That a student transferring from one veterinary college in Class A to another in Class A shall be given credit only for such time and courses (lectures and laboratory) as he has^a successfully completed in the institution previously attended. That no college in Class A shall give credit to any student for any work done at colleges in Classes B and C.

RECOMMENDATION NO. 16—*Supervision of veterinary colleges.*—That the Department of Agriculture maintain such constant supervision of the work of the veterinary colleges as shall enable it to secure the requisite information to determine whether said colleges are faithfully complying with the minimum standard of requirements indicated in this report.

RECOMMENDATION NO. 17—*To secure recognition.*—That those colleges not now included in Class A shall be put in that class at such time as they shall submit sufficient evidence to convince the Department of Agriculture that they are fully and faithfully complying with the minimum standard of requirements indicated in this report.

RECOMMENDATION NO. 18—*Certificate of matriculation examination.*—That any person applying for admittance to the freshman class or for advanced standing must present before being enrolled a certificate showing that he has passed the matriculation examination recommended in this report, and in no case shall he be admitted without such certificate.

RECOMMENDATION NO. 19—*Applicants from colleges not veterinary.*—That an applicant who has successfully completed at least two years' work in a reputable college of human medicine, dentistry, pharmacy, or agriculture, and who brings an official and explicit certificate describing his course of study and scholarship, and also a certificate of honorable dismissal, shall not be admitted to advanced classes or standing in veterinary colleges, but may be given credit for such subjects as have been successfully completed in such colleges if, in the subjects for which credit is sought, said colleges maintain a standard of instruction similar and equal to the minimum standard of requirements recommended in this report.

RECOMMENDATION No. 20—*Agricultural college graduates.*—

That a graduate of the regular four-year agricultural course in an agricultural college having upon its faculty a qualified veterinarian giving a regular course of instruction in veterinary science may be given a time credit of one year, but shall be given credit only for such subjects as he has successfully completed, providing the course of instruction in said agricultural college, in the subjects for which credit is sought, is similar and equal to the minimum standard of requirements in the course indicated in this report.

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RECOMMENDATION No. 21—*One graduation period only.*—

That no veterinary college shall have more than one graduation period yearly, nor shall diplomas be issued except at the close of the regular college year.

RECOMMENDATION No. 22—*Requirements for graduation.*—

1. That a candidate for graduation shall have attained the age of 21 years and attended three full college years in a veterinary college in Class A (except as otherwise provided in Recommendations Nos. 20 and 25); the last year of attendance must have been at the college to which he applies for graduation.

2. He must have successfully completed the course of study and passed all the final examinations in the subjects indicated in this report.

3. If he fails to pass satisfactorily in subjects representing in time 25 per cent. or more of his senior year, these subjects must again be taken in full with a succeeding class before he can graduate.

RECOMMENDATION No. 23—*Information for Department of Agriculture.*—1. That all veterinary colleges shall promptly furnish to the Department of Agriculture a copy of their annual announcements and of all other publications relative to the courses of instruction offered.

2. They shall also furnish, not later than thirty days after the opening of the first session of each college year, a complete list of their matriculates by classes, and within ten days after the close of the college year furnish a complete list of the last graduating class.

United States Civil-Service Examination for Veterinary Inspector.

RECOMMENDATION No. 24—*Eligibility for United States civil-service examination.*—That graduates of the veterinary col-

leges in Class A be at all times eligible for the United States civil-service examination for employment as veterinary inspectors in the Bureau of Animal Industry.

RECOMMENDATION No. 25—*Eligibility of graduates of Class B colleges.*—That any person now (June 1, 1908) a matriculate of a veterinary college in Class B shall be eligible to the civil-service examination for veterinary inspector in the Department of Agriculture after having completed a full course of study of three years and graduated from any veterinary college in Class B.

RECOMMENDATION No. 26—*Not eligible to civil service.*—That hereafter no undergraduate or other person who has not received a diploma from a veterinary college shall be permitted to take the civil-service examination for the position of veterinary inspector.

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Date When Recommendations Take Effect.

RECOMMENDATION No. 27—*Date to take effect.*—That, except as otherwise provided for, the recommendations in this report shall become operative for each institution not later than the close of its college year 1908-9.

Approved:

JAMES WILSON,

Secretary of Agriculture.

WASHINGTON, D. C., June 8, 1908.

[Cir. 133]

GROUND has been broken at the New York State Veterinary College for a new operating room for the Department of Surgery.

THE semi-annual meeting of the Connecticut Veterinary Medical Association takes place at New Haven on the 4th inst.

"THE enclosed subscription makes my twenty-first annual remittance. That the REVIEW is of great benefit to me is putting it mildly."—[J. A. Dresback, V.S., *Ex-Mayor of the City of Stanberry, Mo.*]

THE COWSLIP.—"I saw a cowslip by the river's brim," said the long-haired boarder who had just returned from a stroll.

"I hope 'twan't one of my cows," said the practical farmer. "Did she slip clear in?"

CORRESPONDENCE.

LOCO-WEED POISONING AND BARIUM SALTS.

CHICAGO, Ill., July 24, 1908.

Editors American Veterinary Review:

GENTLEMEN:—On page 334 of the June number of the REVIEW you publish a clipping from the *Journal of the American Medical Association* detailing the recent fortunate discovery of the fact that it is the inorganic constituents of the plants *Aragallus lamberti* and *Astragallus mollissimus*, especially barium salts, which cause loco poisoning of cattle and horses. Your very numerous readers in the mountainous west, in the semi-arid plains and near the Cascade range of the great northwest will wish further information, in the way of citation of practical points brought out in the investigation of special interest to veterinarians, and the means of getting their hands upon the publications where the facts are recorded. It may also be apropos to give credit to veterinary workers in the field of bio-chemistry and among poisonous plants destructive to live stock.

For many years stockmen of the plains east of the Rockies, in the valleys among the mountains and in our northwestern limits—in such States as Colorado, Utah, Montana, Wyoming, Oregon and Washington—have, in the aggregate, lost many millions of dollars in the death of cattle and horses from loco poisoning. There have not been wanting veterinarians, like Dr. George H. Glover, of Fort Collins, Colo., in his "Larkspur and Other Poisonous Plants" (Bulletin 113, of the Colorado Agricultural Experiment Station), and like Dr. Sofus B. Nelson, in his "Feeding Wild Plants to Sheep" (Bulletin 73, Washington Agricultural Experiment Station), to study certain plants poisonous or noxious to domestic animals. They and others not of our profession, like E. V. Wilcox, recently veterinary editor of Experiment Station Records for the United States Government, and translator of Ostertag, have collected, studied and catalogued plants poisonous to our animals and published results in experiment station bulletins or elsewhere. Just what the poisonous principles were was not related, as a rule, though it is something to be able to trace the poisonous effects in the animals to definite

plants. Veterinarians have known for many a year the toxic results of the constant administration of barium salts in veterinary practice, especially the profound results of the solution of the salts, however the dose be given, upon peristalsis, upon the respiratory centres, and upon muscular co-ordination. Quite recently, indeed, Drs. W. E. Frink and H. B. Tillou, under direction of Dr. P. A. Fish, in N. Y. State Veterinary College Laboratory, have undertaken a study of the effects of barium chloride upon horses, cattle and dogs, and reported their findings in "Abstracts of Work Done in the Laboratory of Veterinary Physiology and Pharmacology," No. 6, Ithaca, N. Y., a publication which, for six consecutive years has reported many important original researches in this particular field. The surprising thing is that we have always thought that the toxic effects of the particular plants in the West which make the ox and horse crazy, that is, loco them, were brought about by organic poisons, rather than inorganic. Though we are ready to believe, with Crawford, that the constant absorption of small quantities of barium salts, set free in the stomach when the digestive ferments have operated upon the masticated plants, will, cumulative as the drug is, produce just the results which have verisimilitude to loco-weed poisoning.

Happily, in the Bureau of Plant Industry, United States Department of Agriculture, there is a laboratory, that of Poisonous Plant Investigations, devoted to physiologic and pharmacologic researches into the noxiousness or deadliness of such plants when eaten by man or beast. Through the courtesy of Rodney A. True, physiologist in charge of that laboratory, we have been supplied with a copy of Bulletin No. 121 of that bureau, issued April 18, 1908, containing, besides a new and important study of "Mountain Laurel," a plant which is terribly destructive to goats, sheep, horses and cattle that browse upon it, done by Albert C. Crawford, Pharmacologist, Poisonous Plant Investigations, but, additionally, "Laboratory Work on Loco Weed Investigations," by the same author, and "Results of Loco-Weed Investigations in the Field," by C. Dwight Marsh, Expert, Poisonous Plant Investigations, which are the papers referred to in the clipping from the *Journal of the American Medical Association* quoted in the June number of the REVIEW.*

* Persons desiring copies should apply to their Senators or Congressman for Bulletin No. 121, Bureau of Plant Industry U. S. Dept. of Agriculture, issued April 18, 1908, entitled "Miscellaneous Papers;" or they may send fifteen (15) cents to the Superintendent of Documents, Public Printing Office, Washington, D. C., and procure a copy.

The investigation of loco-weed poisoning had a two-fold aspect, first, that in the field; second, that in the laboratory. The field work, as we have said, was done by C. Dwight Marsh, Government Expert in Poisonous Plant Investigations; the laboratory work was done by Alfred C. Crawford, Government Pharmacologist, Poisonous Plant Investigations. We may, therefore, for the information of veterinarians in general, summarize the results obtained, all of which, both field and laboratory, are important to the science.

The first thing to do in the field investigations was to demonstrate, beyond cavil, whether the loco-weeds, *Aragallus lamberti* and *Astragalus mollissimus*, did or did not cause the disease, and this was proven unquestionably, in the season 1905, when it was clearly shown that *Aragallus lamberti* would poison sheep and cattle and that *Astragalus mollissimus* would poison horses.

In the second season, 1906, a study was made of the symptoms and pathological changes in the tissues. The symptomatic knowledge of veterinarians and stockmen was corroborated, namely, that animals eating these plants give the following picture: Lowered head, rough coat, slow, staggering gait, movements showing lack of muscular co-ordination, paralytic symptoms, generally deranged nervous system, emaciation. The pathological appearances are pronounced anæmia of the whole system, diseased stomach walls, in acute cases congestion of the stomach walls, while in chronic cases ulcers are seen therein. Locoed cattle are apt to have ulcers in the abomasum. There is hydrothorax and ascites, effusion into the epidural space of the spinal cord, particularly a gelatinous mass in the lumbar region of the epidura and at the points of exit of the sympathetic nerves.

The third season, 1907, was given to devising remedial measures, namely, attempts to eradicate the weeds and cure the animals. There is no way of ridding the ranges of the two weeds, though both are killed when pastures are fenced. Cattle may be cured by preventing them from eating the weeds, providing them with nutritious but laxative diet and administering strychnine. Horses should be treated the same way, except that Fowler's solution should be administered instead of strychnine. Epsom salts, Crawford adds, should be given to form the insoluble and innocuous barium sulphate.

All this information is well and good. But the information obtained by Crawford in the laboratory sheds light never before

known on land or sea. It constitutes an original contribution to our knowledge of poisonous principles in forage plants, or rather plants which animals should not be allowed as feed, and which cause havoc among our flocks and herds.

Some of Crawford's determinations are as follows:

1. The symptoms described in stock on the range poisoned by loco-weeds, particularly *Astragalus mollissimus* and *Aragallus lamberti*, can be reproduced in rabbits by feeding them extracts of these plants.

2. The production of chronic symptoms in rabbits is a crucial test of the pharmacological activity of these plants.

3. It is the inorganic constituents, especially barium, which are responsible for the poisonous action, at least in the plants collected at Hugo, Col., but perhaps in the future loco plants from other portions of the country may be found to have other poisonous principles.

4. There is a close analogy between the clinical symptoms and pathological findings in barium poisoning and those resulting from feeding extracts of certain of these plants.

5. In drying certain loco plants the barium apparently is rendered insoluble, *so that it is not extracted by digestion with the digestive ferments*. To be poisonous the barium must be in such a form that it *can be absorbed in the gastro-intestinal tract*.

6. In deciding whether plants are poisonous it is desirable to test not merely the aqueous or alcoholic extracts, but also the extracts obtained by digesting these plants with the ferments which occur in the gastro-intestinal tract.

7. It is important that the *ash of plants*, especially of those grown on our uncultivated lands, or on our unirrigated plains, be *examined for various metals*. (The author here evidently refers to those metals the compounds of which are known to be poisonous—such as silver, mercury, arsenic, barium, lead.)

The important results obtained by Dr. Crawford in his laboratory studies open up, as through a vista, at least one course investigations on poisonous forage will take in the immediate future. That loco poisoning appears to be barium poisoning will tend to lead to an awakening, or, to use the luminous French word, an *eclairissement*, among veterinary pharmacologists. Aristotle, in his sententious and laconic way, said: "The unexpected always happens." We thought abstruse and complex organic compounds were accountable for loco poisoning, whereas the simple technique of work in inorganic chemistry of the sub-

freshman years could have taught us better. The humblest truths, the most useful facts, are commonly not to be sought lost in our cerebral convolutions or gyres, but very close at hand, very near the ground. At the same time Crawford's results and his methods point out to us clearly one of the weaknesses in our veterinary curricula—the omission of courses on botany, especially in its relations to poisonous plants destructive to live stock, general and laboratory courses on toxicology, bio-chemistry, physiological chemistry, organic chemistry. If we do not have these, how are we to undertake successfully investigations such as these which Crawford and his associates undertook in the West—for it may yet be found that many of the toxins in noxious plants destructive to stock are of *organic* origin—and that which Haywood conducted in the Montana smelter poisonings? If we are not good toxicologists we will have to leave these toxicological investigations to men like Crawford and Haywood, while we are laughed at as blockheads. We can only cope with these questions by being grounded in the group of botanical and chemical studies mentioned. Merely the learned number—the deadwood—of those sciences will not do at all. Bookish trumpery is all right in its place. What we need is to be able to discover and to speak authoritatively like Crawford and Haywood. And this can only be done when we can work with theirs or similar tools.

D. ARTHUR HUGHES, Ph.D., D.V.M.

PRELIMINARY UNDERSTANDINGS.—Counsel (to witness): Now, allow me to remind you of what happened to Balaam.

Witness: Certainly; but allow me to remind you that it was the ass that warned him.—*Tit-Bits*.

READING A HORSE'S FACE.—Every horse carries an index to his temper and intelligence in his face. The teachable, tractable animal is broad and flat between the eyes; the bony ridge of his face dishes slightly from the point where the face narrows toward the nostrils. His ears are well set, sensitive and far apart, with a well defined ridge of bone extending across the top of the head between them. Always feel for this ridge in judging a horse. The eye should be large, clear and bright, with a prominent ridge of bone along the inner and upper edge of the socket.—*London Answers*.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

FORTY-FIFTH ANNUAL MEETING AT PHILADELPHIA, PA., SEPTEMBER 8, 9, 10, 11, 1908.

Headquarters and Hotel Arrangements.—The headquarters of the association will be at the Hotel Walton, corner Broad and Locust streets. This hotel is about five minutes' walk from



HEADQUARTER'S OF A. V. M. A.

Hotel Walton, cor. Broad and Locust Streets.

both the Pennsylvania and Reading depots, and about ten minutes' ride from the Baltimore & Ohio station. The Walton offers the following rates: Single rooms without bath, one person,

\$1.50, \$2.00 and up, and with bath \$2.50, \$3.00 and up per day; double rooms without bath, two persons, \$2.50, \$3.00 and up, and with bath \$3.50, \$4.00 and up per day.

Other Hotels.—The Hotel Normandie, Thirty-sixth and Chestnut streets, is within five minutes' walk of Houston Hall and close to the West Philadelphia station of the Pennsylvania Railroad. This hotel offers rates on the American plan at \$3.00 and \$3.50 per day; European plan, \$1.00 and \$1.50 per day.

The Hotel Majestic, Broad street, corner Girard avenue, one of the most attractive hotels in the city, offers rates of \$2.00 each in a room, with a bath, two in a room, in any suite vacant at the time of the meeting. Meals both on the American and European plan.

The Hotel Windsor, 1217 Filbert street, within easy walking distance of the Pennsylvania Railroad depot and Reading Terminal, gives rates, European plan, \$1.00 and up per day; American plan, \$2.50 and up per day.

The Bellevue-Stratford quotes the following rates: Single rooms, without bath, \$2.00 per day, and with bath, \$3.00 per day; double rooms, without bath, \$3.00 per day, and with bath, \$4.00 per day.

Place of Meeting.—The sessions will be held in the auditorium of Houston Hall, at the University of Pennsylvania, corner Thirty-sixth and Spruce streets.

OFFICERS AND COMMITTEES, 1907-08.

President—W. H. Dalrymple, Louisiana.

Vice-President—A. D. Melvin, District of Columbia.

Vice-President—R. C. Moore, Missouri.

Vice-President—J. H. McNeil, Iowa.

Vice-President—R. A. Archibald, California.

Vice-President—C. A. Cary, Alabama.

Secretary—Richard P. Lyman, Connecticut.

Treasurer—George R. White, Tennessee.

Librarian—W. L. Williams, New York.

Executive Committee—William Herbert Lowe, New Jersey (chairman); M. H. Reynolds, Minnesota; Joseph Hughes, Illinois; W. Horace Hoskins, Pennsylvania; J. G. Rutherford, Dominion of Canada; E. B. Ackerman, New York, and the officers *ex-officio*.



VICE-PRES. A. D. MELVIN.



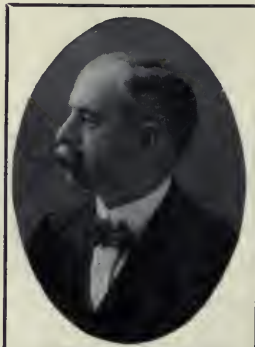
VICE-PRES. R. C. MOORE.



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TREASURER G. R. WHITE.



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Association of Faculties—Geo. W. Dunphy, Michigan (chairman); G. H. Berns, New York; E. H. Shepard, Ohio.

Legislation—J. P. Turner, District of Columbia (chairman); T. Earle Budd, New Jersey; C. E. Cotton, Minnesota; A. S. Cooley, Ohio; C. S. Lamb, Colorado.

Publication—C. J. Marshall, Pennsylvania (chairman); J. W. Connaway, Missouri; Tait Butler, North Carolina; T. E. Smith, New Jersey; R. P. Lyman, Connecticut.

Necrology—A. H. Baker, Illinois (chairman); William Dougherty, Maryland; C. C. Lyford, Minnesota; Thomas Thacker, Canada; J. F. Winchester, Massachusetts.

Resolutions—Sesco Stewart, Missouri (chairman); A. T. Peters, Nebraska; J. L. Robertson, New York; E. L. Quitman, Illinois; M. E. Knowles, Montana.

Local Committee of Arrangements—W. Horace Hoskins (chairman), John W. Adams, Carl W. Gay, C. T. Goentner, S. J. J. Harger, C. J. Marshall, J. C. McNeil, Otto Noack, Leonard Pearson, E. C. Porter, E. W. Powell, T. B. Raynor, W. L. Rhoads, W. H. Ridge, T. H. Schneider.

PRELIMINARY MEETINGS.

Monday, September 7.—11 A. M., Executive Committee; 4 P. M., Association of College Faculties and Examining Boards; 8 P. M., Committees.

PROGRAM.

First Day, Tuesday, September 8, 1908.

8.00 A. M. Meeting of the Executive Committee.

10.00 A. M. Convention opened.

Addresses of Welcome—Hon. John E. Reyburn, Mayor of Philadelphia; Dr. Edgar F. Smith, Vice-Provost, for the University of Pennsylvania.

Response to Addresses of Welcome—Dr. Harry D. Gill, New York City.

President Dalrymple's Address.

Roll Call.

Submission of the minutes of the previous meeting as presented in the annual report and in the records kept by Secretary Lyman.

Welcome to delegates from other veterinary associations—Dr. W. H. Hoskins.

Unfinished business.

12.00 M.

Adjournment.

2.00 P. M.

Association reassembles.

Report of Executive Committee.

Admission of new members.

Reports of regular committees:

Intelligence and Education.

Diseases.

Legislation.

Finance.

Publication.

Local Arrangements.

Necrology.

Resolutions.

Report of Special Committees:

Association Seal.

Revision of Article VI., Sec. 2 of By-laws.

Report of Secretary.

Report of Treasurer.

Report of Resident Secretaries.

Discussion of Reports.

Election of Officers.

5.00 P. M.

Adjournment.

8.00 P. M.

Reception to all members and visitors at Hotel Walton.

Second Day, Wednesday, September 9, 1908.

8.00 A. M. Executive Committee meeting.

10.00 P. M. Association assembles.

Reports of Committees.

PAPERS AND DISCUSSIONS.

I. "The Important Relation of the Veterinarian to the Public Health"—Frederick J. Mayer, M.D., Special Medical Inspector, Louisiana State Board of Health, New Orleans, La.

2. "The Transportation of Live Stock"—N. S. Mayo, Santiago de las Vegas, Cuba.

3. "Shipping Fever of Horses"—Charles H. Jewell, Artillery Corps, Fort Riley, Kan.

4. "Glanders in the Metropolitan District"—Harry D. Gill, New York City.



HOUSTON HALL, UNIVERSITY OF PENNSYLVANIA,
Where the Sessions of the A. V. M. A. will be held.

5. "A Clinical Examination of the Blood of Glandered Horses"—S. H. Burnett and C. D. Pearce, Ithaca, N. Y.

6. "The Eradication of Cattle Ticks in the South"—W. P. Ellenberger, Nashville, Tenn. Discussion to be opened on this paper by Tait Butler.

7. "The Work of the Bureau of Animal Industry in the Control and Eradication of Cattle and Sheep Scabies in the Western States"—Robert A. Ramsay, Department of Agriculture, Washington, D. C.

8. "Experiment on the Prevention of Hog Cholera"—J. W. Connaway, Columbia, Mo.

9. "The Control of Hog Cholera by Serum Immunization"—A. D. Melvin, Chief, Bureau of Animal Industry, Washington, D. C.

10. "Opsonic Therapy"—Robert A. Archibald, Oakland, Cal.

11. "The Bier Treatment"—S. J. J. Harger, Philadelphia, Pa.

12. "Notes on Rabies"—John V. Newton, Toledo, Ohio.

13. "Trypanosomes and Trypanosomiases"—Harry S. Smith, Albion, Mich.

14. "Pustular Eczema"—F. C. Greenside, New York, N. Y.

5.00 P. M. Adjournment.

8.00 P. M. Association reassembles.

Report of Committees.

15. "Milk and Milk Inspection"—C. Courtney McLean, Meadville, Pa.

16. "Hygieia Not the Child of Æsculapius"—Lloyd Champlain, Kansas City, Kan.

17. "Tuberculosis"—Burton R. Rogers, Manhattan, Kan.

18. "Surgery for the Relief of Stringhalt"—T. Bent Cotton, Mount Vernon, O.

10.00 P. M. Adjournment.

Third Day, Thursday, September 10, 1908.

PAPERS AND DISCUSSIONS (*Continued.*)

19. "Diphtheria of Men and Animals"—C. C. Lyford, Minneapolis, Minn.

20. "Diseases of the Mammary Gland in Cows"—Hans Jensen, Weeping Water, Neb.

21. "The Pathological Effects of Captivity in Wild Animals"—W. Reid Blair, New York City, N. Y.

22. "The Making of American Veterinary History"—D. Arthur Hughes, Chicago, Ill.

23. "Our Personal Responsibility to the Profession"—C. G. Lamb, Denver, Col.

24. "The Army Veterinarian and Others"—G. E. Griffin, Third Artillery, Representing Officially the United States Army.
 25. "Pyæmic Arthritis"—Jno. Spencer, Blacksburg, Va.
 26. "The Significance of Pathology to the Practitioner"—A. T. Kinsley, Kansas City, Mo.
- Adjournment.

Fourth Day, Friday, September 11, 1908.

Clinic at the University of Pennsylvania, Veterinary Department, Thirty-ninth street and Woodland avenue. At 12 o'clock noon luncheon will be served. Clinic continues at 1.30 P. M.

The following well known operators will take part: Drs. W. L. Williams, Geo. H. Berns, A. H. Baker, Geo. R. White, L. A. Merillat, S. J. J. Harger, John W. Adams, H. D. Gill, C. E. Cotton, F. F. Hoffman and others.

SOCIAL FEATURES.

The Local Committee of Arrangements has endeavored to arrange an entertainment for the social enjoyment of visitors and friends as well as for recreation for the members. The following has been outlined to occupy the days of convention week:

Tuesday.—Visitors and friends are cordially invited to attend the opening session of the convention at 10.00 A. M., after which they will be escorted through the university buildings and grounds. At 1.00 P. M. luncheon will be served for members and visitors in Houston Hall. 8.00 P. M., a reception will be tendered at the Hotel Walton to which all the members, visiting veterinarians, delegates and their friends are cordially invited.

Wednesday.—Ladies will be shown many of the historic points of interest associated with the early history of our country which have made Philadelphia the mecca of every lover of independence. 8.00 P. M.—There will be a trip to Woodside Park, thus giving all an opportunity to visit Philadelphia's summer attractions.

Thursday.—Ladies will be escorted to places of interest, including Masonic Temple, Fairmount Park, City Hall and through the shopping centre of the city. Theatre party in the afternoon and annual banquet at 8 o'clock in the evening.

Friday.—Luncheon will be served at the University of Pennsylvania, Veterinary Department, Thirty-ninth street and Wood-

land avenue, at 12 o'clock noon to those in attendance at the clinic. The ladies are invited to the luncheon.

Saturday.—Atlantic City offers every form of entertainment and an over Sunday outing.

PROPOSED AMENDMENTS TO BY-LAWS.

There are offered five amendments to the by-laws which will come up for consideration:

To amend Article I., by adding a new section to be known as section 4, and to read: "He shall annually appoint a Corresponding Secretary, whose duty it shall be to make and maintain a list of veterinarians of America eligible to membership in this Association, and to endeavor to secure applications for membership in this body therefrom."—Signed, Executive Committee.

To amend Article I., by changing the numerical order of sections 4, 5 and 6 to read: "Sections 5, 6 and 7."—Signed, Executive Committee.

To amend Article V., section 9 to read: "Each Resident Secretary shall annually submit to the Committee on Intelligence and Education a report concerning recent veterinary facts and prevalent diseases within his jurisdiction, and shall aid the President and Secretary by the performance of such other duties as they may direct."—Signed, Executive Committee.

To amend Article VI., section 1, by striking out the words: "Said application must be in the hands of the Secretary at least thirty (30) days before the third Thursday of August."—Signed, R. P. Lyman and G. R. White.

To amend Article VI., section 9 to read: "Members who have been in active membership for twenty-five consecutive years and continuously thereafter until death or honorable withdrawal from the Association, shall be eligible to an honor roll of the Association, and shall be exempt from dues. It shall be the duty of the Secretary to report the names of members who are eligible to this list at each annual meeting of the Association. The list shall be referred to the Executive Committee for consideration and recommendation."—Signed, M. H. Reynolds.

TRANSPORTATION NOTES.

The Eastern Canadian, the New England, Central and the Trunk Lines Passenger Associations have granted an excursion rate, certificate plan, which provides for one full first-class, limited or unlimited, fare going and three-fifths fare returning by

the same route. This consideration is based upon there being one hundred or more persons in attendance at Philadelphia holding certificates properly approved at the meeting and which show a going fare of 75c. or more.

This arrangement will include all Canadian territory east of Port Arthur, Ontario; the entire New England States; the States of New York, New Jersey, Delaware, Maryland, West Virginia, north of Charleston, Virginia north of Charlottesville, and Alexandria, Ohio, Michigan, Indiana, Illinois, including and east of Chicago; also the District of Columbia. The certificate plan will not be operative on tickets purchased in Pennsylvania from points east of and including Erie, Oil City and Pittsburg, but, on the other hand, a fare of two cents per mile in each direction on round-trip tickets will be sold good going September 3d to 9th and returning leaving Philadelphia not later than September 15th. This round-trip ticket to be issued for the occasion upon application to any local Pennsylvania ticket agent. These tickets will not require validating.

Parties living outside of the territory in which the certificate plan is operative, viz., west of Chicago, Peoria and St. Louis, should purchase summer tourist tickets from their starting place, on a basis of less than two cents per mile, to the nearest point within the territory of the operation of the certificate plan (which place you will learn through your local ticket agent), and there purchase a certificate ticket to Philadelphia.

From California, Nevada, Oregon, Washington and points in British Columbia a nine months' tourist fare approximating two cents per mile through ticket in either direction is available to points within the certificate plan, viz., to Chicago, St. Louis or Peoria. Parties from these western points may obtain proportionately higher rates direct to Philadelphia, New York or Washington, D. C.

The following directions are submitted for your guidance:

1. Tickets for full fare going journey may be secured within three days (exclusive of Sunday) prior to and during the first three days of the meeting. The announced opening date of the meeting is September 7th and the closing date is September 11th, consequently you can obtain your going ticket and certificate not earlier than September 3d nor later than September 9th. Be sure that, when purchasing your going ticket, you request a certificate. *Do not make the mistake of asking for a receipt.*

2. Certificate must be obtained from ticket agent at the time of buying the ticket and is not transferable; a transfer or mis-

use of a certificate will forfeit all privileges granted the purchaser.

3. Present yourself at the railroad station for ticket and certificate at least 30 minutes before the departure of train on which you will begin your journey.

4. *Certificates are not kept at all stations.* If you inquire at your home station, you can ascertain whether certificates and through tickets can be obtained to place of meeting. If not obtainable at your station, the agent will inform you at what station they can be obtained. You can in such case purchase a local ticket thence, and there purchase through ticket and secure certificate to place of meeting.

5. Immediately on your arrival at the meeting, present your certificate to Dr. Richard P. Lynian, Secretary.

6. It has been arranged that the Special Agent of the Trunk Line Association will be in attendance to validate certificates on September 9th and 10th. *A fee of 25c. will be charged for each certificate validated.* If you arrive at the meeting and leave for home again prior to the Special Agent's arrival, or, if you arrive at the meeting later than September 10th, after the Special Agent has left, you cannot have your certificate validated and consequently you will not get the benefit of the reduction on the home journey. *No refund of fare will be made on account of failure to have certificate validated.*

7. So as to prevent disappointment it must be understood that the reduction on the journey home is not guaranteed but is contingent on an attendance at the meeting of not less than 100 persons holding regularly issued certificates obtained from ticket agents at starting points, showing payment of full first-class fare of not less than 75 cents on the going journey.

8. If the necessary minimum of 100 certificates are presented to the Special Agent, and your certificate is duly validated, you will be entitled up to and including September 15th, to a continuous passage ticket to point at which certificate was issued, and by the route over which you made the going journey, at three-fifths of the first-class limited fare.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The semi-annual meeting of the above association was held at Newark, N. J., July 9-10, 1908, with Dr. J. B. Hopper in

the chair. The first day two sessions were held at Stetter's Assembly Hall, 842 Broad street, while the entire second day was devoted to the conduct of a clinic and the performance and demonstrations of surgical operations at Dr. Vander Roest's Veterinary Hospital, 10-12-14 Orchard street.

Members Present.

Axford, Baldwin, Berry, Bridge, Budd, Churchill, Dixon, Dustan, English, Finch, Forsyth, Glennon, Gray, Harker, Hendren, Holdenby, Hopper (A. G.), Hopper (J. B.), Horner, Hurley, Kaiser, King, Laddey, Lindsay, Little, Loblein, Lowe (J. Payne), Lowe (Wm. Herbert), Magill, Mathews (John P.), Mount, Mosedale (James), Mosedale (Robert E.), McDonough, McCoy, Ripley, Rowe, Jr., Runge, Smith (Thos. E.), Stage, Thompson, Turner, Tuttle, Vander Roest.

Other veterinarians and guests were present as follows: Augustus Berdan, D. V. S., Inspector B. A. I., Newark; Edgar D. Bachman, D. V. S., Newark; John H. Bakelaar, M. D. C., Passaic; H. W. Bellman, D. V. S., Newark; L. J. Belloff, D. V. S., New Brunswick; C. E. Clayton, D. V. S., New York City; J. W. Collins, M. D., Newark; E. T. Davison, D. V. M., Superintendent of the U. S. Animal Quarantine Station, Athenia; Geo. P. Ellice, D. V. S., Rutherford; Mr. J. G. Feaster, Jacobstown; Henry J. Glennon, M. D. C., Newark; F. C. Grenside, V. S., President of the Veterinary Medical Association of New York City; Winfield B. Hobson, V. M. D., Paterson; James D. Hopkins, V. S., D. V. S., Newark; John J. Pardue, V. M. D., Newark; Geo. W. Smith, D. V. S., Hoboken; Thos. G. Sherwood, M.R.C.V.S., Woodcliffe Lake; Harold E. Stearns, D. V. S., Arlington; J. J. Teufel & Bro., Philadelphia, Pa., and others.

Minutes of Regular and Special Meetings Approved.

The minutes of the twenty-fourth annual meeting, held at Trenton, January 9, 1908, were read and approved.

The minutes of a special meeting held at the State House, Trenton, March 23, 1908, relative to Senate No. 194, creating a Board of Animal Industry, and prescribing its powers and duties, were also read and approved.

New Members Proposed.

Edgar D. Bachman, D.V.S., Newark; vouchers, Drs. James McDonough and John B. Hopper.

John H. Bakelaar, M.D.C., Passaic; vouchers, Drs. J. Payne Lowe and Thos. B. Rogers.

John G. Feaster, Jacobstown; voucher, Dr. Geo. O. Forsyth.

The applications were duly referred to the executive committee in accordance with the requirements of the by-laws.

Report of Executive Committee.

Dr. J. Payne Lowe, chairman, for the executive committee, reported on the above applications as follows: Edgar D. Bachman and John H. Bakelaar favorably and recommended the election of both gentlemen. In the case of John G. Feaster the report of the committee was unfavorable since the applicant was not qualified to practice veterinary medicine under the laws of New Jersey.

New Members Elected.

Drs. Bachman and Bakelaar were duly elected to membership and introduced to the association by the president.

Report of Committee on Legislation.

The committee on legislation made a full report of its labors. It was impossible to pass Senate 194, creating a Board of Animal Industry, at the recent session of the legislature, but much had been accomplished towards the desired end and it would not be many years before New Jersey would be in line with a veterinary sanitary service which would compare favorably with that of any other state.

Among the new laws passed are the following: Chapter 56, authorizing the establishment of a live stock commission of the State of New Jersey for the purpose of promoting interest in the breeding of pure-bred domestic animals and the improvement of grade animals of the various breeds. The commission is given power to purchase and maintain stallions of the draft and coach type. Twenty thousand dollars is appropriated to the use of the commission for the current year and thereafter an annual appropriation of five thousand dollars.

Chapter 212 regulates the public service of stallions and jacks in New Jersey. Provision is made for the registration, examination and licensing of all stallions and jacks.

Chapter 97 appropriates the sum of \$25,000 to the State Commission on Tuberculosis in Animals for defraying expenses and for the payment of slaughtered animals.

The game laws of the state are amended in several important particulars, and additional legislation was enacted for the prevention of cruelty to animals.

The health and pure food laws are amended. The State Board of Health, as heretofore constituted, was legislated out of existence (chapter 298) and an act passed (chapter 299) creating a new State Board of Health. The governor has appointed new men on the board and it is being reorganized. It is earnestly hoped that this important branch of the state government will now be administered in a more efficient and comprehensive manner.

Secretary's Report and Communications.

The secretary read a letter from Professor Leonard Pearson, Dean of the Veterinary Department, University of Pennsylvania, expressing regret at his inability to be present. He also read a letter from Dr. Geo. W. Pope, tendering his resignation as a member of the association. His reason for resigning was the continued ill-health of his daughter which made a change of climate necessary for her well-being. Dr. Pope has been assigned to duty at San Diego, California.

The secretary reported that the A. V. M. A. has extended an invitation to the V. M. A. of N. J. to be represented by one or more delegates at the annual meeting of the national organization at the forthcoming annual meeting at Philadelphia from September 8 to 12. President Dalrymple felt that such action on the part of our association might be the means of placing our membership in closer touch with the A. V. M. A., and while it was not his purpose to dictate the character of the representation it was suggested that veterinarians who at this time are not members of the A. V. M. A. be selected; that the A. V. M. A. would be pleased to grant the privilege of the floor, in debate, to delegates.

The secretary also reported that in accordance with a resolution adopted at the last meeting twenty-one members had been dropped from the rolls of the association for non-payment of dues.

In connection with the death of Dr. Roscoe R. Bell, which occurred February 8th last, the secretary reported that an appropriate floral piece had been sent to his funeral, by order of President Hopper, as a token of regard for our departed brother. He read a letter from Mrs. Bell, asking that her grateful acknowledg-

ment be extended to the association for its expression of sympathy in her bereavement. The secretary suggested that a committee be appointed to draft suitable obituary resolutions.

The secretary also reported to death of Dr. A. T. Sellers, second vice-president of the association, who died at his home in Camden, N. J., April 3, 1908. Drs. Rogers, Mecray and Magill served as a committee to procure a floral tribute and to represent the association at the funeral. A committee should also be appointed to draft obituary resolutions.

Unfinished and New Business.

Arthur W. Smith Reinstated.—Dr. Arthur W. Smith, East Orange, made a payment on account of his back dues and he was reinstated to membership by vote of the association.

Dr. Pope Elected an Honorary Member.—Dr. Pope's resignation was accepted with regret. He was then elected an honorary member.

Ex-President Loblein Presented With a Gold Watch.—President Hopper recognized Dr. Smith, who proceeded to make some remarks that, to say the least, greatly surprised Ex-President Loblein, and he presented him with a handsome gold timepiece, the gift of his fellow-members of the association. In responding, Dr. Loblein said it was one of the proudest moments of his life and gave expression of his love for the profession and his high esteem for the members of the V. M. A. of N. J.

Committees and Delegates Named.—The President appointed committees as follows:

Animal Industry—Dr. Whitfield Gray, chairman, to succeed Dr. Geo. W. Pope, resigned.

Committee to assist the Pennsylvania Committee in entertaining the A. V. M. A. at Philadelphia—Dr. L. D. Horner, chairman; Magill, Loblein, Hendren and Smith (T. E.).

Delegates to the A. V. M. A. meeting at Philadelphia—Drs. Runge, Rogers (Thos. B.), Harker, Hurley and Harrison.

Delegates to the International Congress on Tuberculosis at Washington, D. C.—Drs. Lowe (Wm. Herbert), Runge, Tuttle, Budd, Gray, Rogers (Thos. B.), Rowe, Jr.

Committee on Bell Resolutions—Lowe (Wm. Herbert), Smith (Thos. E.), Runge.

Committee on Sellers' Resolutions—Rogers (Thos. B.), Glennon and McDonough.

Obituary Resolutions—Roscoe R. Bell.

Whereas, in the death of a man of the ability and sagacity of Roscoe R. Bell, practitioner, educator, and editor, which occurred February 8, 1898, the profession at large suffers an irreparable loss; and

Whereas, Dr. Bell was a frequent visitor at our semi-annual gatherings; and

Whereas, the ties of friendship were of such a character that we shall always cherish his memory; therefore, be it

Resolved, That we record our sense of loss and give expression of our sympathy to his family in their bereavement; and be it further

Resolved, That a page be set apart in the minute book of the Veterinary Medical Association of New Jersey to his memory, and that a copy of these resolutions be sent to his family and to the AMERICAN VETERINARY REVIEW.

WM. HERBERT LOWE,

T. E. SMITH,

WERNER RUNGE,

Committee.

Next Place of Meeting.

Upon motion of Dr. Glennon, the association decided to hold its annual meeting at Trenton in January.

Reading and Discussion of Papers.

"Ideals for the Veterinarian."* Dr. T. Earle Budd presented this subject in his usual eloquent and fascinating manner.

"Observations on Anthrax and Symptomatic Anthrax"* is the title of an able and interesting paper read by Dr. Whitfield Gray.

Both papers provoked a lively and profitable discussion. Dr. F. C. Grenside, of New York, remarked that he was impressed with the number of orators we possessed among our members.

Meeting adjourned at 6 P. M.

Evening Session.

The association reconvened at 8 P. M., with President Hopper in the chair for the discussion of the subject of tuberculosis and the efficiency of the tuberculin test. The attempt of the *New York Herald* to stultify the work of the profession in the public mind was deplored, and upon motion of Dr. Budd a com-

* See Original Articles.

mittee of three was appointed to conduct a campaign of publicity on the side of the profession. The chair appointed as such committee Drs. Rogers, Budd and Hendren.

Upon motion of Dr. Rowe, the representatives of the association, who had been appointed as delegates to the International Congress on Tuberculosis at Washington, D. C., September 21 to October 12, were instructed to use their best endeavors to obtain from the Congress an endorsement on the efficiency of the tuberculin test.

The following resolutions were presented by Dr. Rogers and adopted by the association:

Resolved, That it is the sense of this association:

1st. That bovine and human tubercle are interchangeable; that their differences are morphological—differences of environment.

2d. That the tuberculin test is as nearly perfect as anything can be.

3d. That the disease is contagious at whatever stage the bacilli are given off from the host.

4th. That cases of recovery in bovine tubercle are so rare that they can be left out of account.

5th. That this association deprecates as absolutely unfair the attack now being made on present tuberculin testing and restriction arising therefrom now being made by portions of the press.

Dr. McDonough made a motion that the association endorse the methods of the Montclair Board of Health for safeguarding the milk supply of that municipality from bovine tuberculosis. Dr. Lowe (Wm. Herbert) moved as an amendment, seconded by Dr. Vander Roest, that the executive committee be requested to make an investigation of the methods of said board and report its findings to the association. Amendment carried.

Meeting adjourned at 11.30 P. M.

Operations and Clinic.

A clinic was held at Dr. Vander Roest's Veterinary Hospital, 10-12-14 Orchard street, July 10, commencing at 9 A. M. The following operations were performed and demonstrations made, together with others not enumerated:

Ovariectomy in bitch (without anæsthetic), Dr. Rogers; (with anæsthetic), Dr. Hopper.

Cunean Tenotomy (standing), Dr. McDonough; (subcutaneous operation), Dr. Loblein; (tendon raised and demonstration made), Dr. Grenside.

Median Neurectomy, Dr. Hopper.

Shoeing for Spavin, interfering, quarter crack and demonstration of adjustment of springs to horse's feet, Dr. McDonough.

Pus in the Frontal Sinuses, Drs. Rogers and Magill.

Poll Evil, Dr. Rogers.

Operation on Roarer, Dr. Clayton.

Spavin Operation, Dr. Loblein.

Excision tumor on head of chicken, Drs. Clayton and Rogers.

Etherization of canine patient for operation, Dr. Mount.

Cutting dogs' ears, demonstration of proper methods, Dr. Mount.

Method of handling cross and vicious dogs, Dr. Mount.

Canine Practice Cases, Dr. Baldwin.

Stringhalt, Dr. Grenside.

High Neurectomy, Dr. Rogers.

The local committee deserves great credit. The arrangements were admirable. There was a large number of cases of all kinds on hand, as well as an abundance of clinical material, plenty of diagnosticians and operators, and the whole program was carried out in a commendable manner. It was 6 p. m. when the last operation was completed. It seemed to be the consensus of opinion that this was the best meeting ever held by the association, which is claiming a good deal, for some excellent meetings have been held.

WM. HERBERT LOWE, *Secretary*.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The fourteenth annual meeting of the above association convened in Omaha, Nebraska, June 23d and 24th, 1908.

The meeting was called to order in the auditorium of the City Hall by President J. H. Jensen at 9 a. m.

The roll call was dispensed with, as those present registered at the door. The following is the list: W. H. Austin, J. S. Anderson, C. E. Baxter, M. V. Byers, F. F. Brown, B. J. Baker, J. A. Berg, E. E. Biart, B. F. Barber, D. M. Campbell, H. Crandall, J. A. DeCov, C. H. Dechert, R. Ebbitt, A. T. Everett, A. Eger, H. E. Foster, B. Fisher, P. W. Flickinger, G. W. Giese,

D. E. Gall, C. L. Gomel, J. I. Gibson, R. Gabler, T. W. Gidley, C. Goodwin, W. D. Hammond, C. C. Hall, E. H. Hyland, A. E. Hoffman, F. Jelen, A. T. Jones, J. P. Jorgenson, P. Juckniess, S. H. Johnston, B. F. Kaupp, A. T. Kinsley, S. H. Kingery, T. H. Knaak, A. J. Kyle, W. M. Lee, R. Lovell, W. J. Lacy, C. P. Liegerot, W. F. Lyon, I. W. McEachran, H. M. McConnell, E. J. Meixel, C. S. McKim, E. F. McGraw, E. J. Netherton, C. L. Norris, J. H. Oesterhaus, S. P. Ojers, E. K. Paine, J. G. Parslow, A. T. Peters, H. Pew, O. G. Ruffcorn, J. E. Strayer, V. Schaefer, F. S. Schoenleber, C. E. Simpson, H. C. Simpson, P. Simonson, D. C. Scott, E. F. Stewart, S. Stewart, G. P. Stratton, L. J. Trafton, H. B. Treeman, F. E. Treeman, A. J. Treeman, J. Vincent, A. L. Wood, C. L. Wilhite, D. G. Young, H. E. Zimmermann.

The minutes of the previous meeting were read and approved. The secretary then read a letter of acknowledgment from Mrs. Rebecca Bell of receiving resolutions of respect for the late Dr. Roscoe R. Bell, which were adopted at the semi-annual meeting.

A letter of regret of inability to attend from Dr. L. L. Lewis, of Stillwater, Okla., was also read. The secretary then announced that the following gentlemen who were on the program but could not attend had forwarded their papers: Dr. J. F. Tippet, Chicago, Ill.; Dr. B. Rogers, Manhattan, Kan.; Dr. J. M. McKenzie, Northfield, Minn. The resignation of C. W. Dunn was read and was accepted by the association. A communication was read from Dr. R. P. Lyman, secretary of the American Veterinary Medical Association, in which the request was made to send one or more delegates to the meeting of that association to be held at Philadelphia, September next.

A motion was made that one delegate be named from each state represented in the M. V. V. A. by the chair. Seconded and carried.

The president then appointed the following names on the Board of Censors in the place of absentees: Drs. H. Simpson, J. H. Gain and F. F. Brown.

The following applicants, duly vouched for and favorably passed upon by the Board of Censors and pronounced worthy and well qualified, were admitted to membership:

Iowa—Drs. A. L. Wood, Hampton; P. W. Flickinger, Greenfield; J. P. Jorgenson, Elk Horn; B. F. Barber, Fonda; C. D. Williams, Woodbine; S. H. Johnston, Carroll; F. J. Trafton, Jefferson.

Missouri—J. R. Seipel, St. Marys; J. Emonts, St. Charles; T. B. Jones, Kansas City; W. F. Holbrook, Higginsville; S. R. Ingram, Kansas City; C. L. Gomel, Craig; C. H. Dechert, Hamilton; D. C. Houser, Carthage; J. W. Riley, Wright City; L. L. Cress, Clinton.

Nebraska—E. J. Meixel, Aurora; B. J. Baker, Mitchell; C. M. Elliott, Humboldt; H. E. Foster, Falls City; E. H. Hyland, Columbus.

Kansas—D. M. Campbell, Hiawatha; F. J. Lauman, Wichita; D. W. Nolan, Wichita.

South Dakota—B. H. Sayre, Brookings.

Oklahoma—H. Fay, Pawhuska; C. R. Walter, Tulsa.

Moved by Dr. S. Stewart, seconded by Dr. J. S. Anderson, that the Board of Censors with the elective officers constitute an Executive Committee, whose duty it shall be to meet before the opening of the regular sessions to consider any business to be brought before the association, such Executive Committee to exist until a like committee is provided by the constitution.

A resolution was introduced by Dr. A. T. Peters, seconded by Dr. V. Schaefer, that a committee of three be appointed to define the duties of the Executive Committee.

Dr. Hal C. Simpson, chairman of the Board of Censors, then made a report of the findings of the Board of Censors. Twenty-eight applications favorably passed up. Treasurer's books found to be correct and \$106.75 in the treasury.

The secretary's salary, as provided for by a resolution of June 13, 1904, was \$25 and expenses, the latter amounting to about \$18. This, he said, the censors regarded as too low and recommended that it be made \$50 per annum and expenses. It was found that the membership consisted of about 275 members and that the mailing list consisted of between 600 and 700 names. Dr. S. H. Kingery moved that the report of the Board of Censors be accepted. Seconded and carried.

Moved by Dr. H. C. Simpson that the secretary's salary be made \$50 and expenses. Seconded and carried.

The following officers were elected for the ensuing year:
President—Dr. J. I. Gibson, Des Moines, Iowa.

First Vice-President—Dr. D. M. Campbell, Hiawatha, Kan.

Second Vice-President—Dr. V. Schaefer, Tekamah, Nebr.

Secretary-Treasurer—Dr. B. F. Kaupp, Kansas City, Mo.

Board of Censors—Dr. A. L. Wood, Iowa; Dr. J. A. De-Cow, Nebraska; Dr. C. H. Dechert, Missouri; Dr. J. V. La-Croix, Kansas; Dr. W. B. McAlester, Oklahoma.

A paper on the use of influenza anti-toxin was then presented by Dr. J. H. Ooesterhaus, Fort Riley, Kan. This paper was discussed by Drs. Brown, Anderson, Simpson, Biart, Gibson, Kaupp, Netherton and others.

Several reports of cases were made by Dr. S. H. Kingery, Creston, Iowa, and R. Lovell, York, Nebr.

Meeting adjourned at 12.30 p. m. for luncheon.

At 1.30 p. m. those in attendance gathered at the hospital of Dr. D. C. Scott, 2810 Mason street, for clinic. Dr. Scott, with the assistance of Drs. Everett, Hall and Young, had provided a large and well planned clinic and great credit is due the local committee for their efforts.

The following is a list of the cases:

Case No. 1—A bay mare, showing lameness in the fore limbs, was presented for diagnosis. Drs. Gain and Jensen were called, who, after cocaining, decided the lameness was without question one of foot lameness and recommended median neurectomy, which was ably performed by Dr. S. H. Johnston, of Carroll, Iowa.

Case No. 2—A black mule, lame in left hind leg, was presented for diagnosis. Drs. Kingery and Schaefer were called upon. Diagnosis: Spavin. Treatment: Recommended a blistering.

Case No. 3—A gray gelding, showing a marked "stringhalt" condition in the right hind leg. Tenotomy of the peroneus tendon by Dr. S. H. Kingery.

Case No. 4—Oophorectomy in bitch, Dr. H. Jensen.

Case No. 5—A bay mare was presented with contraction of perforans and perforatus tendons in the left fore leg. Tenotomy by Dr. V. Schaefer.

Case No. 6—A gray gelding was next presented. After running a few blocks "roaring" was noted. Operation arytenoidectomy by Dr. J. S. Anderson, Seward, Nebr. This horse was given six drams chloral hydrate diluted 1:10 intravenous.

Case No. 7—A black mare was presented with a bursal enlargement on the fore part of the carpal region. Drs. Baxter and Brown were called upon to advise as to treatment.

Case No. 8—A bay mare with ringbone in the right fore leg was presented. Median neurectomy was advised and performed by Dr. D. C. Scott.

Case No. 9—Oophorectomy in mare performed by Dr. J. S. Anderson.

At 8 p. m. veterinarians attended the annual dinner which was given at the Calumet. The banquet was excellently served and all present felt it was well they were there. The following subjects were presented:

"The Relation of the Veterinarian to the Horse Breeding Industry," by Dr. J. H. Gain, Lincoln, Nebr.

"Chronic Catarrh in the Horse," by Dr. F. J. Trafton, Jefferson, Iowa.

"Opsonins," by Dr. A. T. Kinsley, Kansas City, Mo.

Wednesday, June 24th, 1908, meeting called to order by the president, Dr. H. Jensen. "The Increased Demand for Municipal Meat and Dairy Inspection in Kansas," was presented by Dr. F. S. Schoenleber, Manhattan, Kan.; Dr. H. C. Simpson, Denison, Iowa, presented the subject of "Azoturia." "The Dermacentor Reticulatus," by Dr. R. B. Hurd, Payette, Idaho;; "Restraint of Animals by Aid of Chloral Hydrate," by Dr. F. F. Brown, Kansas City, Mo.

At 12 o'clock the meeting adjourned for luncheon.

At 1 p. m. the meeting was again called to order by the president.

The paper of Dr. J. F. Tippet, Chicago, Ill., on "Benefits of Inspection of Meats from the Packers' Standpoint" was read. "Intestinal Calculus," by Dr. H. J. McKenzie, was also presented.

"Tuberculosis in a Colt" was reported by Dr. C. C. Hall. After which many interesting cases met with in practice were reported.

Meeting adjourned.

B. F. KAUPP, *Secretary*.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

DELHI, N. Y., July 30, 1908.

Editors of the American Veterinary Review:

New York City, N. Y.

Gentlemen—I wish to announce that the nineteenth annual meeting of the New York State Veterinary Medical Society will be held at Utica September 2, 4, inclusive.

PROGRAM.

Paper on Sterility, Dr. W. L. Williams; discussed by (a) Dr. T. F. O'Dea, (b) Dr. Chas. Cowie, (c) Dr. Grange.

Paper on Lameness, or the Diagnosis of Lameness, Dr. G. H. Berns; discussed by (a) Dr. F. J. Baker, (b) Dr. J. E. Ryder, (c) Dr. E. J. Hanshew.

The Veterinarian as a Sanitarian, Dr. E. B. Ackerman; discussed by (a) Dr. G. T. Stone, (b) Dr. V. A. Moore, (c) Dr. W. R. Blair.

The External Conformation of the Horse, Dr. F. C. Grenside; discussed by (a) Dr. J. W. Corrigan, (b) Dr. J. E. Ryder, (c) Dr. Grange.

Paper on Horse Shoeing, Dr. C. H. Taylor; discussed by (a) Dr. F. J. Baker, (b) Dr. Wm. F. Doyle.

Saccharine Foods, Dr. C. D. Morris; discussed by (a) Dr. C. H. Berns, (b) Dr. C. E. Shaw, (c) Dr. W. G. Hollingworth.

The Secretion of Milk, Dr. P. A. Fish; discussed by (a) Dr. W. G. Hollingworth, (b) Dr. C. D. Morris, (c) Dr. R. C. Reed.

Paper on Dentistry, Dr. Gordon Darby; discussed by (a) Dr. W. L. Williams, (b) Dr. Chas. Clayton, (c) Dr. R. W. McCully.

Rabies in New York State, Dr. Wm. H. Kelly; to be discussed at one of the evening banquets.

Supper and banquet to be held the first evening.

Entire evening to be devoted to the subject of Glanders.

Paper on Glanders, Dr. H. G. Berns; discussed by (a) Dr. H. D. Gill, (b) Dr. E. B. Ackerman, (c) Dr. Wm. H. Kelly.

Dinner to be held the second evening, after which there will be a Symposium.

Entire evening to be devoted to the discussion of Tuberculosis.

Paper on Tuberculosis, Dr. V. A. Moore; discussed by (a) Dr. C. D. Morris, (b) Dr. Wm. H. Kelly, (c) Dr. H. D. Gill, (d) Dr. W. G. Hollingworth.

Paper on "A Case of Pseudoleukemia in a Dog," Dr. S. H. Burnett; discussed by (a) Dr. James Law, (b) Dr. V. A. Moore.

Paper on "A Peculiar Case of Paralysis in Cattle," Dr. W. J. Taylor; discussed by (a) Dr. E. B. Ackerman, (b) Dr. C. E. Shaw, (c) Dr. V. A. Moore.

Committees appointed—Legislative Committee: Drs. W. G. Hollingworth, R. W. Ellis, A. G. Tegg. Committee on By-Laws: Drs. C. D. Morris, W. L. Williams, G. H. Berns. Committee on Resolutions: Drs. James Law, E. B. Ackerman, W. Reid Blair. Committee on Medical Jurisprudence: Drs. C. D. Morris, V. A. Moore, F. C. Grenside. Committee on Arrangements: Drs. W. G. Hollingworth, E. B. Ingalls, L. G. Moore, J. M. Currie. Committee to Answer Questions for the Question Box: Drs. V. A. Moore, G. H. Berns, Wm. H. Kelly.

W. HAMILTON, *Secretary*.

LOUISIANA VETERINARY MEDICAL ASSOCIATION.

This association held its regular annual meeting at Baton Rouge, La., on the 4th ult. The meeting was called to order by President M. M. White, of Shreveport, in the Agricultural Building at the Louisiana State University at 11 a. m.

The executive committee, composed of Drs. White, Flower and Chaney, acted favorably upon the following applications: Dr. Frank Collins, of Monroe, Chicago Veterinary College; Dr. T. C. Paulson, of Baton Rouge, Chicago Veterinary College; Dr. H. F. Vulliamy, of Crowley, Ontario Veterinary College; Dr. Joseph L. Drexler, of Thibodaux, New York Veterinary College; Dr. J. Arthur Goodwin, of New Iberia, Kansas City Veterinary College.

The act passed by the present session of the General Assembly regulating the practice of veterinary surgery and medicine in Louisiana, was read and commented upon, the members of the association being greatly pleased with its provisions. Dr. H. J. Milks, of the State Experiment Stations, was elected an honorary member of the association due to his early permanent departure from the state.

The following are the officers named for the ensuing year: Dr. M. M. White, of Shreveport, president; Dr. Jos. L. Drexler, of Thibodaux, vice-president; Dr. E. P. Fowler, of Baton Rouge, secretary and treasurer.

Members were in attendance from New Orleans, Shreveport, Baton Rouge, Monroe, Crowley, New Iberia and Thibodaux.

The meeting was highly satisfactory in every particular, and it was the opinion of all present that a new era has opened for the profession and in the interest of stock owners and breeders in the state.

After the meeting the association was entertained at a dinner given by Dr. W. H. Dalrymple, veterinarian at the Louisiana State University.

E. P. FLOWER, *Secretary*.

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The eleventh semi-annual meeting of this association was held on Thursday, July 9, 1908, at Webber Brothers Veterinary Infirmary on Andrews street, Rochester, N. Y.

Members present: Doctors L. R. Webber, A. McConnell, O. B. French, J. H. Taylor, P. J. Johnson, A. Geo. Tegg, W. B. Switzer, G. C. Kesler, Edward Nodyne, Nelson N. Lefler, D. P. Webster, Warren E. Stocking, W. J. Payne, J. E. Smith, Carr Webber, William F. Woolston, John O. Moore, W. H. Mahony, Ludo L. Zimmer, F. E. Cleaver, together with the following visitors: Doctors G. R. Chase, A. J. Tuxill, R. Perkins and D. D. La Fevre.

The clinical work began at 11 o'clock and continued until 3, when the meeting adjourned to the Masonic Temple, where a business session was held, at which several members reported some very flagrant violations of law. The association, by vote, instructed the president and secretary to instruct an attorney to prosecute the offenders. There was a good discussion on the operations performed at the clinic, and several members gave some interesting case reports. Dr. E. H. Nodyne, of Fulton, N. Y., read a very interesting report of experiments with tuberculine and mallein on tuberculous subjects.

The next meeting of the association will be held the second week of January. Arrangements are being made for a fine program to be presented at this meeting.

J. H. TAYLOR, *Secretary*.

NEWS AND ITEMS.

You cannot afford to miss the Philadelphia meeting.

OVER 800 veterinarians are now in the service of the Bureau of Animal Industry.

S. J. WALKLEY, M.D.V., Inspector B. A. I., is now stationed at Cudahy, Wisconsin.

Dr. H. D. GILL has been appointed veterinarian to the Police Department of the City of New York.

Dr. A. T. FERGUSON, assistant to Dr. Robert W. Ellis during 1907, has located at Cleburne, Texas.

Dr. OLOF SCHWARZKOPF's troop has finished its annual march and is now at Camp Leon Springs, Texas, for a month's manœuvres.

Dr. T. EARLE BUDD, who officiated last week as veterinarian at the Atlantic City Horse Show, has acted in that capacity at Atlantic City at seven consecutive annual events.

J. ELMER RYDER, Professor of Obstetrics and Clinical Medicine, New York-American Veterinary College, is a victim of a severe attack of rheumatism. He has gone to Mount Clement, Michigan, for the benefit of the baths.

Dr. GEO. R. CONRAD, of Sabetha, Kansas, with his family, were visitors in Kansas City and vicinity during the first week in July. The Doctor has been very prosperous in general practice and is now the possessor of two fine Kansas farms as the fruit of his labors.

Dr. GEO. H. GLOVER, of the Colorado State College, recently visited Eastern cities hoping he might engage qualified instructors in sufficient number to place the Veterinary Department of the Colorado Agricultural College in the highest governmental class of veterinary colleges.

Dr. H. E. THOMPSON, of Pueblo, Col., is making an extended visit in Kansas and Missouri during the summer months in hopes of bettering the health of Mrs. Thompson. This indeed seems strange to those who live in the East and are wont to go to Colorado Springs and other resorts in the mountain state to recover health.

GOVERNOR FORT has announced the appointment of Dr. T. Earle Budd as a member of the Live Stock Commission of the State of New Jersey. This commission was created by an act of the last legislature for the promotion of interest in the breeding of pure-bred domestic animals and the improvement of grade animals of the various breeds. The new law provides for the examination and licensing of stallions and jacks.

DR. ELLIS, of the REVIEW, was taken with a severe chill about ten days ago followed with a high fever. His wife, who had gone to their Asbury Park cottage, was summoned back to the city. His temperature ran up to 106 degrees Fahrenheit and his physician stayed by his bedside. We are relieved to be able to say, however, that the danger soon passed and that the doctor's restoration to his usual good health has been sufficient to enable him to make the trip to his cottage by the sea.

Dr. H. JENSEN, of Weeping Water, Nebraska, has accepted a position as instructor in the Kansas City Veterinary College. The Doctor is widely known throughout the Central West, and particularly in the State of Nebraska, where he has been lecturing to Farmers' Institutes for some time past. He has taken a very active part in veterinary association work, holding official positions in several of them. The K. C. V. C., which already commands the confidence of the profession in this country, acquires a new element of strength by adding Dr. Jensen to its Faculty.

President JAMES of the University of Illinois, who has been commissioned by Governor Deneen to make a study of recent educational developments in Britain and on the continent, will make careful inspection of the leading foreign veterinary schools with a view to gathering information of value in the establishment of the new college of veterinary medicine and research by the university trustees at the stock yards, Chicago. Liberal provision has been made for this new college by the stock yards interests, and the trustees of the university will exert every effort to plan the most comprehensive and modern institution of the kind in the world.—(*The Breeder's Gazette.*)

AMERICAN VETERINARY REVIEW.

SEPTEMBER, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, July 15, 1908.

THE DIAGNOSIS AND TREATMENT OF TORSION OF THE LARGE COLON IN THE HORSE.—The *diagnosis and treatment of torsion of the large colon in the horse* is the title of an essay from Prof. Forssell, published in the "Zeitschrift fur Eiermedizin." A review of it has been made by Prof. Leclainche in the "Revue Generale."

Among the many accidents described under the name of colics, twisting of the colon has been the subject of many special studies. In 1890 Jelkmann said that this torsion can be recognized by rectal examination, and that its reduction is an easy matter. In "Moller and Frick," it is stated that the spiral disposition of the transversal fissures of the colon is a sure sign of the torsion existing. When it occurs to the right, the spires are directed from forward backward and from left to right. In the torsion to the left, they have an opposite direction. This rule, however, is not absolute in all cases. Indeed, it is not sufficient to speak of torsion. But it must be remembered that the several portions of the colon can undergo many displacements. The twisting may extend to the four portions, exist near the diaphragm, may reach the two superposed portions of the left side or again the pelvic curvature. Besides all this, the degree of the torsion may vary. It may be one-quarter, one-half, three-quarters of a turn or even be more, a whole turn, even one and

a quarter or again one and a half. If the four portions are twisted, generally the turn is complete. Naturally, according to these different cases, the characters of the spiral formed will differ.

At any rate, one must always bear well in mind the topographical anatomy of the abdominal cavity, otherwise the rectal exploration will find it very difficult to arrive at the correct diagnosis of the accident. Other signs exhibited by the patient may be of some help, but they are not characteristic as those that can be obtained by the rectal examination.

* * *

Remembering the peculiar disposition of the four portions of the organ, the superposed arrangements that they assume, their relations with the abdominal walls and the diaphragm, their curvatures, their short mesentery and the contractions and sac-ciform dilatations that they present, one can readily recognize, in the normal condition, every peculiarity, especially if the intestines are almost completely empty. But if it is distended by food or gases, this is more difficult. And such is the condition with the torsion of the colon, hence the recognition of parts more difficult. Indeed, let us suppose a case of twist of the left compartment of the colon. By rectal examination, the lower left portion will be recognized by the sacciform dilatations, while the upper left portion will, on the contrary, be felt rounded, smooth and of a smaller diameter. Then the cœcum may induce one in error, although the directions of the folds of that organ will be sufficient to recognize it. The rectal examination, however, can only be applied for the two portions of the left side, as those of the right cannot be generally felt through the rectum.

According to Forssell, the march of the torsion of the colon is in general as follows: The manifestations of pain, while working or in the stable, are slight. The pulse is often almost normal during the first hours, also the respiration. Peristaltism is reduced or entirely arrested. After a few hours the size of the abdomen is noticeably enlarged by the accumulation of gases.

The portions of the right side of the organ and the cœcum become also dilated with gases. The pulse then becomes accelerated, 80, 90 after 10 or 12 hours. In others, after 20 hours, it is only 60 or 70. Great general weakness becomes manifest and yet no great pain. Some horses lay down but once and are still standing up a few hours before death, which, if the reduction is not made, will occur after 30 or 40 hours in average.

* * *

The treatment consists in the reduction of the torsion. It is the rolling over of the patient in the same way as is done for torsion of the uterus. The principle is that *the horse must be rolled in the direction of the torsion.*

Indeed, the colon is twisted upon its axis in the sense of the longitudinal direction of the body; if the intestines being fixed, the body is rolled in the same sense, all will return to its place. If the colon is twisted to the right, roll to the right. If to the left, roll to the left.

To fix the intestine, may present some difficulty, but one may secure it or at least help it by rolling the patient rapidly, while at the same time, puncture of the intestine has already relieved the friction against the walls of the abdomen by the escape of the gases. And besides that, the hand introduced into the rectum will steady the pelvic curvature and, so to speak, immobilize it. The results are almost always satisfactory. Out of 18 cases treated, Forssell has lost but one. This animal had been rolled over several times and it had been necessary to puncture him several times in the colon to allow the escape of the gases. Contents of the intestines had dropped into the peritoneal cavity and given rise to fatal peritonitis.

Once the reduction obtained, it is announced by an abundant evacuation of gases per rectum. Some times this does not take place immediately. But yet the left flank shows the result by its dropping back to its size and its bloating subsiding. If the torsion had been recent, and the reduction realized, the horse has recovered at once. But if the trouble has existed for some fifteen

or twenty hours already, the animal will remain depressed for some little time. In all cases the after treatment consists in a careful diet carried out for several days.

* * *

THE VALUE AND USE OF MORPHIA IN CANINE SURGERY.—The value and use of morphia in canine surgery has been the subject of a long paper which was read before one of the Societies of England by Prof. Fred. Hobday, F. R. C. V. S., and has found its way in several of our English contemporaries. Treated as all the subjects to which the Professor gives his attention, the value and use of morphia deserves to be noticed by all veterinarians. A glance at the concise extract which has appeared in the "Veterinary Journal" will give us a fair idea of the manner in which the question is treated.

"Morphia has been recognized for many years past as an agent which is useful to minimize pain in the human subject as well as in animal patients; but in the case of the later it is universally conceded by all veterinary therapeutists, who have studied its action, that its effects on the different species of veterinary patients differ very considerably."

"In surgical works, the narcosis that it rapidly produces can be made use of both to assist in keeping the patient still and thus aiding in delicate manipulations, and in reducing pain. By its aid alone, minor operations can be performed, and if its action is assisted by a local anesthetic, even quite severe operations can be completed. To handle a vicious dog and render him tractable and harmless; for the setting of fractures in restless patients; in cases involving laparotomy; and combined with chloroform, the benefit of the use of morphia cannot be overlooked by the careful surgeon.

"The average dose necessary to produce the desired effect is about one-sixteenth of a grain per pound of body weight, although this can be exceeded with perfect safety. In fact, the insusceptibility of dogs to large doses of morphia is perfectly extraordinary. So much so that it is quite impossible to state

with certainty what reasonable dose will be lethal. Hobday has given 15, 18 and 20 grains to dogs so as to kill them without accomplishing his end. A medicinal dose will in three minutes be followed by vomition and often with defecation, and this makes it a useful drug to administer in urgent cases of poisoning by strychnia. After four or five minutes the dog falls asleep. In rare cases he may show excitement, delirium with hurried respiration. In half an hour any simple injury can be safely attended to. For more severe procedures, three-quarters of an hour are necessary to have the state of narcosis at its height. Very large doses of the drug will cause refusal of food and a staggering gait for even 24 or 36 hours after. But with the average dose, the patient recovers sufficiently quick to walk home.

* * *

These considerations that I abbreviate considerably are accompanied with a long list giving the concise history of 90 cases, with breed and sex, age, approximate weight, nature of the operation, amount of morphia given, and remarks relating to each case. While the age of the patients has varied between six months and fourteen years, the list shows that according to the weight of the animal the dose of morphia has varied from one-half a grain to five grains. The principal operations performed were "For venereal tumours, Entropion, Prolapsus recti and vagina, Extraction of tooth, Ovariectomy, Castration, opening of abscesses, removal of sub-cutaneous cysts, removal of mammary glands, amputation of the tail, umbilical hernias, leg amputation, setting of fractures, pterygium, cataract, etc., etc. These operations being performed with the use of morphia alone or assisted as the case required with other local or general anesthetics.

In his conclusions, Prof. Hobday resumes the advantages of the use of morphia as follows:

- "1. Safety of the drug when used with reasonable care.
- "2. The patient is less nervous and much more tractable and easy to manipulate.
- "3. The operator needs less help and a local or general anesthetic can be employed with great facility.

"4. The patient does not struggle so much and is less likely to become hurt during the operation or the process of securing.

"5. The patient rests more tranquilly after the operation and remains quiet for a considerable time.

"Minor disadvantages: Vomition and defecation. Idiosyncrasies which may be accompanied with hurried respiration and delirium. Tendency to hemorrhage and possibly difficulty of removing until the prolonged narcosis has passed away."

We feel that our readers will derive good benefit by resorting to the method recommended by the Professor. Extensively in practice on the continent the results have proved satisfactory in both branches of medicine.

* * *

TENDINOUS AND PERIOSTIC REFLEXES IN HORSES.—Some time since Dr. Theodore Schmidt has called the attention to *tendinous and periostic reflexes in horses* and published a *contribution to the diagnosis of lameness*. The "Revue Generale" reviews it as follows:

Erb and Westphal have described in 1875 under the name of tendinous and periostic reflexes, sudden muscular contractions produced by any mechanical irritation; a sudden shock of the tendons or of the periosteum. While the study of reflexes has assumed great importance in the semiology of nervous diseases of man, it has scarcely been considered in veterinary medicine and the subject has remained unexplored with the exception of the investigations made by Dexler. In man, the principal reflexes are those of the patella and of the Jendo-Achillis, constituting what is known as the "Foot Phenomena." Some cutaneous reflexes (cremaster, abdominal wall) give also valuable indications.

Tendinous and periostic reflexes have a real interest to the point of view of the diagnosis of lameness. And yet surgical works scarcely mention them. Speaking of the exploration of the foot, with the hammer or the nippers, Fröhner considers the muscular contraction resulting from their application as a mani-

festation of the pain resented. Moller says that in sore condition of the foot, there is exaggeration of a sudden (reflex) motion of contraction of the leg.

But this muscular contraction resulting from the percussion or the exploration by pressure of the nippers takes place also without the existence of painful lesion and then it constitutes a true reflex which ought to be designated as *reflex of the foot*.

On the dorsal face of the cannon, on a level with the middle third, it is not rare to obtain, by palpation, a reflexed contraction, differing entirely from the painful sensation felt by the periosteum at that point. This ought to be called the *reflex of the cannon*.

Another reflex, the *metacarpal*, is also obtained on the median fore face of the metacarpus in the neighborhood of the carpal joint or between the metacarpus and the median face of the knee, and when there is no inflammatory condition of the periosteum or of the pre-articular region.

Tendinous reflexes are observed specially on the level with the flexors, on the tendon of the flexor of the metacarpus or on the suspensory ligament.

Applying the plessimetric hammer upon the middle part of the superior sesamoid ligament, mild reflexes are obtained. They can be called *reflexes of the flexors*, *reflex of the suspensory*.

* * *

In all cases, these are long reflex effects, corresponding to multiple segments of the spinal cord, with the co-operation of collateral reflexes and these reflex contractions differ from the various characters of the voluntary motions resulting from a pain.

“ 1. Reflexes will always be looked for, on all corresponding extremities together and will be found upon two anterior or two posterior extremities or upon the four at once.

“ 2. Reflex contractions are obtained with percussion of the foot or by a sudden pressure on the elective spot.

“ 3. Involuntary reflex contractions are sudden, the animal remaining entirely at rest. Contractions due to pains, voluntary,

are repeated; several groups of muscles are involved; they increase with the severity of the pressures and finally various insolite movements are manifested.

“4. In doubtful cases, other symptoms will be looked for, especially local manifestations (heat, deformity) likely to explain or bring suspicion of a painful condition.

“5. The reality of reflexes can be learned by the examination of a number of animals sound and free from lameness.”

There is no doubt that the subject will present a wide field of interest, and if it has not the importance that it offers in human medicine, its study and better application by veterinarians may prove of great value in the diagnosis of lameness, which, notwithstanding the great progress that has been made in late years, has yet left many cases obscure and doubtful.

* * *

ANATOMICAL OBSERVATIONS.—For anatomists, anomalies are always interesting and for the surgeons the knowledge of their possible presence is of utmost importance. Of course, some of these differential arrangements in tissues or in organs constitute merely curiosities and their presence is comparatively secondary in its importance. And yet the simple curious fact from natural condition is always deserving attention, this, of course, varying according to the organ which is different from the ordinary.

Prof. Luigi Varaldi, of the Anatomical Institute of the Royal Veterinary School of Milan, has recently recorded in the “*Clinica Veterinaria*” a few anatomical observations which deserve our concise notice.

He found them first in several muscles. 1. It was the muscle *Stylo glossus*, which existed on both sides of the head of a horse, being prepared for anatomical demonstration. The muscle was doubled at its origin. The supplementary portion, entirely muscular had the form of a cone and was attached anteriorly on the lateral face of the thyroid branch of the hyoid bone and passing

forward joined the fibres of the true stylo-glossus muscle. The same anomaly existed on both sides, but the supplementary branch of the right side was smaller and more delicate.

2. On the same head, the glosso-staphileus presented also a peculiar condition, namely, in having a delicate muscle which, from the soft palate, extended to the superior maxillary bone, a little back of the last molar. The tendon situated under the mucous membrane of the anterior pillar of the soft palate was continued by the muscular fibres and after bordering the lobules of the staphyline glands reached the lateral face of the tongue and running forward as far as the symphysis of the inferior maxillary, ended with the mylo-hyodeus.

3. The digastricus was found in one head, perfectly isolated into two special portions, the digastricus and the stylo-maxillaris. This one presenting the peculiar condition that the posterior part did not pass through the fibrous ring which normally is found and divides the muscle into two bodies.

4. A supplementary fasciculus was found in preparing the right ocular region of a horse. This consisted in a small muscle, which from the posterior border of the reflexed portion of the great oblique muscle, a short distance from the trochlear pulley over which this passes, run backward describing a curve with concavity turned upward and terminated upon the superior border of the superior rectus muscle. This little adjunct received a special nervous branch from the fourth pair of cranial nerves.

Prof. Varaldi concludes by the record of a case where he found an accessory branch to the left renal artery of a horse. While there are a number of cases on record where the kidneys have been found receiving blood from other branches besides the true renal arteries, the one observed by the Italian anatomist has never been observed. Indeed, in his case, the left kidney has its normal artery with its normal peculiarities, but there is also a large artery which, leaving the posterior aorta, near its quadrifurcation, a little in front of the origin of the external iliac, runs forward so as to reach the left kidney where it enters at its posterior border after dividing into two branches.

TUBERCULOSIS OF THE RETROPHARYNGEAL GLANDS.—As frequently even when one is making an examination of the head in looking for tuberculous lesions, diseased condition of the retropharyngeal glands is overlooked, Mr. L. Spartz, Director of the Abattoir of the City of Luxemburg, has in "The Hygiene de la Viande et du Lait" published a short reminder, which veterinarians will consult with advantage.

"All bovines that cough are in the eyes of the public to be regarded as suspicious of tuberculosis, and if tuberculosis of the superior respiratory tracts is rarely mentioned in veterinary medicine, it is probably because the inspection of the intermaxillary space and of the retropharyngeals has not been made in a sufficiently minutious manner. If these retropharyngeal glands are regularly examined, they are often found diseased and often also more frequently than the others. It is a local tuberculosis, which may also be found accompanying pulmonary tuberculosis; but has also been observed in animals having no tubercular lesions in any other organs or part of their body. Yet, it is a lesion quite rare in animals affected with generalized tuberculosis.

Out of 28 animals which presented lesions of the retropharyngeal glands, seven presented no lesions of tuberculosis in any other part of their body. In the 21 others there were lesions of the lungs, of the liver, of the intestines. One had lesions of the first cervical vertebræ.

The following are the clinical symptoms. In forms, not well marked, if tuberculization is not indicated outside by deformity of one or both sides of the parotids, the affection is indicated only by a strong cough, frequent but not by spells. This cough has not the classical characters of the animal having extensive tuberculosis. The animals remain fat, their eyes are bright, the chest and loins loaded with fat. The tuberculous glands act upon the mucous of the pharynx as a foreign body. The animal coughs whether in a warm stable or in cool air. And this manifestation is not promoted by the ingestion of cold drinks, blow on the thorax, or accelerated exercise. It is the only clinical

symptom. In some cases, however, if the tumor is large and as big as an egg or the fist it is noticed externally by the deformity of the lower part of the parotid region.

This tumor is attached by its deep face, is not painful, is uniformly hard and may be taken for actinomycosis. The absence of fistulous tracts and the character of the pus will establish the diagnosis. Normally the glands form two little bodies more or less round, two or three centimeters long, one or two thick. If tuberculous they rapidly enlarge and constantly irritate the nervous terminations, hence the cough.

When the affection is primitive, Mr. Spartz, in his practice excises the diseased gland without touching the surrounding tissues.

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EUROPEAN SUNDRY ITEMS.—I will continue the Review of European Sundry Items inaugurated in my last chronicle.

REBELLION AT THE VETERINARY SCHOOL OF VIENNA.—I have already alluded to it. Here are a few more details. For some time, sustained by graduates already practicing, the veterinary students of Vienna have been claiming for reforms in the organization of the school, which it is known is strictly military. The Government and the Parliament ignoring the demands, a large manifestation was organized. About 200 students, after a great row during the lectures, which had to be stopped, presented their requests to the Director of the school, where they asked for the transfer of the school from the War to the Public Instruction Secretary; for no admission of farriers to the veterinary school, and finally demanding an apology to be made to the students for an insult they had received from one of the sub-officers on duty. "Down with the military regime. No more Secretary of War" was their cry. The students were dispersed by militaries and the school closed.

A week later, a great meeting took place, six deputies were present, also high functionaries, the members of the faculty and many practitioners. One of the students read the desiderata,

asking also for the degree of Doctor, the abolition of the lectures, which were common for the students and the farriers, the creation of a bovine clinic with outside calls, of a chair of hygiene and the modernization of the mode of examination. Many speeches were delivered and the meeting broke out at the cries of "Down with the Secretary of War." A few days later a delegation was received by the proper officers and were assured that the Government would examine their claims at once.

* * *

A QUEER PROTEST.—At the school of agriculture of Portici, the students and the professors have sent a strong protest against veterinarians being allowed to follow the lectures on Zootechny. This protest will, however, have no effect, as veterinarians have a perfect right to follow these lectures.

* * *

A LAW SUIT AGAINST PROF. LOEFFLER.—An outbreak of foot and mouth disease that had occurred on some farm had its origin traced to the Institute where the distinguished Professor carries on his experiments. The Secretary of Agriculture had the case dismissed; but by decision of the Superior Court of Justice, it seems the case has to follow its course. The issue of the case is watched with great interest by German veterinarians. It would certainly be a very sad thing to see the learned Professor held responsible for an act resulting from his researches and upon which he had no control.

* * *

A Belgium paper has announced the unexpected news of the *resignation of Prof. DeGivé*, Director of the Veterinary School of Cureghem. This would be a great blow to the school. It is rumored that the cause is some difficulties existing in the administration of the Secretary of Agriculture upon which the school depends.

* * *

Pamphlets received the last month and this have been plenty and their contents are interesting and instructive.

In the first line are two experiments by the Director of the Zootechnic Institute of the Agriculture School of Milan, Dr. Antonio Pirocchi, on the *influence of milk on the health of calves* and again *as food*.

Then came from the Bureau of Animal Industry, first, Bulletin 104, a report by Clarence B. Lane, on *Medical Milk Commissions and the production of certified milk in the United States*. Second, Circular 127, on *Tubercle Bacilli in butter* by E. C. Schroeder, M. D. V., and W. E. Cotton, and, third, Circular 129 on *Rabies and its increasing prevalence*, by George H. Hart, V. M. D. A concise little review of that everinteresting subject which ends with strong conclusions relating to the eradication of the disease which can be resumed in three words, "muzzle the dogs." An advice whose successful results are presented in a few words and form a strong argument in favor of the method.

As a complement to the above, I have the pamphlet of Langdon Frothingham, M. D. V., on *Impression preparations and the Van Gieson Stain for Negri bodies*.

Finally from the Department of Agriculture of Victoria: A pamphlet on *Veterinary Inspection of Stallions* for the Certificate of Soundness and Approval, illustrated with 37 figures and accompanied with the report of Mr. Swinburne upon such examination.

A. L.

THE VETERINARIAN'S MECCA.

We published last month the program and everything of especial interest concerning our great International Veterinary Convention which convenes on the 8th, 9th, 10th and 11th days of the present month at Philadelphia, under the auspices of the University of Pennsylvania. In this issue of the REVIEW we give space to the program of the Association of Veterinary Faculties and Examining Boards of North America, an important organization in affiliation with the A. V. M. A., which will meet in

Philadelphia the day previous to the opening of the convention. The meeting this year promises to be of extraordinary interest to the profession on account of the Government investigation of veterinary colleges and the educational standard that will have to be observed hereafter by the colleges in order for their graduates to be eligible to take the civil service examination for employment in the Bureau of Animal Industry.

We are also publishing in this issue the program of the International Congress on Tuberculosis, which takes place at Washington, D. C., September 21 to October 12, as well as that of the Association of Interstate Live Stock Sanitary Boards, which holds its meeting at Washington the week intervening between the adjournment of the A. V. M. A. at Philadelphia and the opening of the International Congress on Tuberculosis in Washington.

The section meeting of the Congress will take place the week beginning September 28th, and the exhibition will continue for the entire three weeks, from September 21 to October 12. There is to be a joint session of Section I, "Pathology and Bacteriology," and Section VII., "Tuberculosis in Animals and Its Relations to Man," on Wednesday afternoon, September 30. The list of papers and authors is included in the program published elsewhere in this issue of the REVIEW.

It is indeed a remarkable circumstance for so many important bodies to meet so convenient to each other both as to time and place.

Surely never before was there such a grand opportunity for the veterinarian, and it is hard to conceive of any member of the profession being so foolish as to allow this opportunity of his life go by without availing himself of its privileges.

A PLAN FOR FILING BULLETINS.

In this issue of the REVIEW our talented collaborator, Dr. M. H. Reynolds, of the University of Minnesota, offers to the profession a very simple and satisfactory decimal system key for

filing bulletins, miscellaneous pamphlets and clippings that seems to possess advantages over other systems now in use in many libraries and offices.

Dr. Reynolds had several copies of this key made with a view to distributing them to his personal friends whom he thought might be having the same trouble with bulletins and reprints which he had been having, thinking possibly to save them the labor which he had undergone in devising a satisfactory way of filing such publications. He thought of so many men who probably needed something of the kind that he decided to submit it to the REVIEW. We take pleasure in publishing it for the benefit of the profession. By Dr. Reynolds' method a bulletin or report may be very promptly filed, and as promptly found.

JOHNE'S DISEASE IN CATTLE.

The occurrence in America of a chronic bacterial dysentery of cattle identical with a disease found by Johne and Frothingham at Dresden in 1895 and studied by Bang, McFadyean, Liautard and others, has been recognized in remote parts of this country. Pearson, in the February REVIEW, reports the diagnosis of the disease in Pennsylvania.

It has also been recognized in Minnesota and Wisconsin. Dr. W. L. Beebe, Bacteriologist for the Minnesota State Live Stock Sanitary Board, contributes a valuable paper (see original articles,*page 692) on the study of the disease in the northwest which will be read with much interest.

IN THE MISSION SUNDAY SCHOOL.—Teacher: And what do you suppose all the animals did during these forty days in the ark? "Smarty" Williams: They just loafed around and scratched themselves. "Sandy" Toole (disdainfully): Chuck it, Smarty! What'd they scratch for, when there was only two fleas?—(*The Bohemian.*)

ORIGINAL ARTICLES.

THE SYSTEMIC HANDLING OF WOUND INFECTION.

BY PROF. W. L. WILLIAMS.

A Paper Presented to the Veterinary Medical Association of New York City.

When a wound becomes infected the practitioner attempts to overcome it so far as possible by local measures, and in so doing goes about his task with a definite plan to combat the disease.

It is doubtful, however, whether all practitioners have an equally clear conception of the Systemic or internal handling of wound infection when its effects have passed or threaten to pass beyond the confines of the wound area to involve the entire system of the patient. Each practitioner presumably recognizes the influence of the system upon the course of the local lesion. It is constantly observed in practice that one patient having a severe and extensive wound progresses favorably and makes a prompt recovery, while another of the same species and with a less extensive and complex wound does badly. Sometimes we find the difference in the character of the infection, but often the bacteriologist cannot tell us by examining the organisms from a benign and malignant wound to which of the two a given culture belongs, and we habitually refer this clinical difference to individual resistance due to some peculiarity of the system. We thus recognize the fundamental proposition that in wound infection the disease may be essentially confined in its ravages to the wound area or may involve more or less seriously the entire animal organism.

These variations stand out so conspicuously in every-day practice that they constitute an important element of uncertainty in prognosis. We have learned clinically to look askance upon wounds in weak, debilitated animals, while the same apparent injuries in a vigorous individual create less alarm.

Our view of these variations in the intensity of wound infection is modified by the rule that the results are largely dependent upon the quality and quantity of the infecting agent, but this does not lessen our belief, based upon clinical experience, as well as the teaching of experimental medicine, that the entire animal organism is influenced by and influences wound infection. Bacteriology teaches us that in wound infection, systemic disturbances may result either from the entrance of bacterial products into the blood, toxæmia, or of the toxins and bacteria together, septicæmia.

After the infecting organisms or their products have invaded the system any local application or handling within our power does not affect their influence upon the animal body, though their presence within the general circulation reacts upon the wound itself and tends constantly to increase the virulence in the wound area. The local and systemic infections are complementary, each contributing to the intensity of the other.

After a time the infection within the wound area may be overcome by the tissues, destroyed, and the wound permitted to heal, or ulceration, fistula or gangrene may result. Similarly depending somewhat upon the character of the wound infection, the systemic disturbances may cease through the casting out of the infecting agent or its products or its destruction within the body, the patient's life may be brought to an end in virulent cases or in some forms of infection like botryomycosis, glanders or bursattee it may assume a chronic state and continue for months or years.

Few phases of wound infection are of greater basic importance than its systemic handling, and yet, in a large measure, veterinary practitioners fail to grasp its full significance and frequently neglect to avail themselves of important means at their command for accelerating and increasing the probability of recovery. It would be extremely unfortunate if, in considering the systemic handling, we should in the least neglect or relax in the local measures which we all recognize as being of such great

fundamental importance, but we hold that each phase should command our earnest attention. When the veterinarian undertakes the local handling of an infected wound, he proceeds somewhat according to the following plan:

1. He attempts to mechanically remove the infecting organisms by free openings following by ample irrigation, excision or curetting away of fatally or dangerously infected tissues.

2. The destruction of the infecting organisms remaining in the wound by the application of chemical, thermal or other killing agents-disinfectants.

3. The prevention of fresh bacterial invasions through wound occlusion.

We would outline an analogous scheme for the systemic handling of wound infection so soon as the disease has surmounted or threatens to overcome the local barriers provided by the tissues and is menacing the well being of the organism as a whole. As in the local, so in the systemic plan, we may well give first place, chronologically at least, to the physiologic expulsion of the offending agents, the bacteria and toxins, from the body. We are not aware that we can literally accomplish the former in wound infections; possibly not, though we know that in some diseases the living bacteria are expelled in the urine. Accurate data are also wanting regarding the excretion from the body, in their original form, of the various toxins arising in wound infection.

Clinically, however, we have ample evidence that those remedies which stimulate the excretory organs tend constantly to alleviate the systemic effects of the infection. When wound infection escapes the local barriers, the resultant systemic disturbances express themselves ordinarily by fever and abatement of the excretions, decreased volume of urine of abnormal composition, decreased expulsion of dry feces diminished perspiration; and it is a common clinical experience that the restoration of any or all of these excretory processes to the normal or hyper-normal tends to reduce the fever, and, in harmony with the

amelioration of the systemic disturbances, the local conditions improve. Consequently, from the earliest dawn of surgical practice, resort has been made to those means which tend to stimulate these excretions in order to combat fever without specifying its cause.

In a measure this phase of systemic handling of wound infection receives attention through the diet, though too often, perhaps, without a due sense of its importance, and hence with imperfect results. Generally the veterinarian, in handling wound infection, suggests a laxative diet, which constantly tends to accelerate the three excretions named. Possibly the average veterinarian prescribes this diet because it is fashion, or because he believes such foods more readily digestible or for other reasons more or less vague. It is true that such, as a rule, are simpler and easier of digestion and, being so, serve as an aid to the system in overcoming wound infection, whereas a food difficult of digestion undergoes bacterial decomposition in the digestive tract, elaborates poisons where nutrition is needed and serves to intensify the systemic disturbance due to the wound infection instead of relieving it.

The veterinarian should not only advise, but insist upon a proper diet for a horse suffering from a severe wound, be it surgical or accidental. The natural laxative foods for the horse consist of grass, vegetables, roots and fruits. In summer, when available, fresh grass constitutes the best food in the majority of cases for horses invalided by wounds and in winter the place of this is best filled by carrots or turnips or vegetables like cabbage or less effectively by potatoes or apples.

These foods, as well as properly prepared bran mashes, tend constantly to arouse the functions of the skin, kidneys and bowels to greater activity and in many cases of very severe wounds these precautions alone, so far as systemic handling is concerned, suffice to keep the animal organism in normal order and prevent an accumulation of toxic products within the system sufficient to induce fever.

In other cases we need through artificial stimuli to arouse the dormant or overwhelmed excretory organs to unusual vigor in order to avert threatened disaster. In this manner such stimulants as alcohol, camphor and coffee, so highly recommended by Fröhner and others, possibly exert their chief influence, while others believe they act as antiseptics.

The greatest exit for waste solids and liquids from the body is through the alimentary canal and hence it has long been the custom, in some classes of wound infection, to administer purgatives. We witness this familiarly enough in the aloetic purge usually given in lymphangitis in the horse, and perhaps even more commonly in such infections as mammitis in dairy cows, a disease essentially parallel to wound infection, of local origin and referable to the ordinary bacteria responsible for wound infection.

Purgation has, however, been difficult, tedious, uncertain, and sometimes unsafe in the horse, and hence has not been so freely applied as in other animals and in man. We regard this difficulty as having been well overcome by the addition to our materia medica of a number of powerful vegetable alkaloids capable of inducing purgation promptly, certainly and safely.

With such drugs as eserine, pilocarpine and arecoline the veterinarian has at his command agents with which he can induce such a degree of purgation as desired within an hour or two without inducing great excitement or depression. We know quite well that there are those veterinarians who have a dread of the action of these drugs, drawn from their experience or observation, but, so far as we have been able to determine, their fears have been aroused through errors in dosage or otherwise.

In our hands, in small doses, repeated and increased as the case may demand, we have found them free from danger and unpleasant consequences, far safer than aloes, and so prompt that their action may be obtained before the crisis of the disease is reached instead of enduring the vexatious and oftentimes dangerous delay in case of aloes. Not only do these arouse the intestinal

secretions, but they stimulate as well the skin, liver and salivary glands. It seems to us that in such wound infections as lymphangitis in the horse where alætic purgation holds a high repute, far better results are attainable by the more prompt action of some of these highly active vegetable alkaloids.

Apparently they have been little used in wound infections, but to us they seem to richly invite an extended clinical trial. In our experience the most thoroughly illustrative case of the use of any of these was that of eserine and pilocarpine in the handling of acute mammitis in a cow which, although not in the animal to which our paper is specifically devoted, is yet so suggestive that its inclusion seems warranted by analogy.

The cow, a profuse milker, weighing 1,000 pounds, had calved on March 6, 1900, and later in the day had been submitted to the Schmidt (potassium iodide) treatment for severe parturient paresis, to which there was prompt response followed on the 7th by mammitis on the left side and on the 8th by intense mammitis involving the entire gland, which was greatly enlarged, hot and tender. The milk was flocculent, yellowish in color and contained great numbers of micrococci. Temperature at noon 103 F., muzzle dry, appetite in abeyance, general depression. Into each quarter of the udder there was injected one-half pint of a 10 per cent. solution of hydrogen peroxide and externally there was applied with massage equal parts of Tr. Camphor, Fl. Ext. Belladonna and Olive Oil. Hypodermically we gave two grains each of eserine sulphate and pilocarpine hydrochlorate.

At 6 P. M. the temperature had risen to 105.8 F., the patient was down and required urging and assistance to get her up, was very greatly depressed, listless and wholly inattentive to her calf. The swelling and tension of the udder had increased. The indications pointed to mammary gangrene and an early fatal termination. The bowels had moved but little. The previous dose of eserine and pilocarpine was repeated.

At 8 P. M. the bowels had moved freely, the temperature had dropped to 103.4, the tension of the udder had diminished, the cow was showing some maternal instinct. The eserine and pilocarpine were repeated for a third time.

Throughout the course of administration the eserine and pilocarpine had acted reliably, promptly and efficiently. Within a few minutes after administration vigorous peristalsis was clearly recognizable in the intestines and especially in the rumen.

On the morning of the 9th the patient was essentially convalescent, her appearance was bright, appetite good, temperature normal, the mammary tension had disappeared, the milk secretion, still abnormal, had greatly improved in quality and quantity, and from this period forward the limited mammitis gradually receded.

We believe we were correct in attributing the result to the effects of the eserine and pilocarpine. The case appeared to us hopeless by any ordinary method; we had no faith in the intermammary injection for it could not be forced into the tumefied infected acini, nor could we hope for good to come from the external application.

We do not pretend to state the exact manner in which these drugs act to overcome infection or its effects upon the system. It is not the purgation alone, for that is not essential. In indigestion this is well observed. We do not need to purge an animal nor induce narcosis. If we arouse a peristalsis equivalent to the normal, the indigestion and colic ceases, the tympany vanishes, the fermentation of alimentary contents disappears, the peristalsis or some functional activity associated therewith has proven an efficient and prompt antiseptic. So, in wound infection or similar bacterial invasions, it may not be the purgation or salivation or perspiration, but some quite as potent arousal of a functional activity, undefined as yet, in the tissues and organs of the body.

But the clinical fact which should impress us most is that the maintenance of the normal functional activities of the excretory organs by judicious diet, or their arousal to their normal or hyper-activity by stimulation is of essential importance in the

handling of wound infection and that the practitioner is derelict in his duty whenever he neglects these important measures. We consider drastic purgation an equally pernicious extreme to neglect, but commend rather such maintenance or stimulation of excretory activity as a proper study of the case indicates, from the normal peristalsis to moderate purgation unaccompanied by distress or depression.

This can be accomplished in the horse usually by means of three-quarters to one and one-half grains each of eserine and pilocarpine, beginning with a safely small dose and repeating, and, if need be, increasing the amount until the desired effects are obtained.

In equine practice it has been too largely our custom to rely upon those purgatives which, if they act at all, do so violently a day or two after administration when many of our patients should really be convalescent instead of in the throes of superpurgation. Prompt, moderate and gentle catharsis has been little studied and less practiced, though, in our judgment, it has great value not alone in wound infection, but wherever circumstances call for the prompt elimination of disease products and of ailment contained in the digestive tube which can only unfavorably affect the system while remaining in a putrefactive state.

In wound infection also the introduction into the system of a normal salt or physiologic saline solution has been highly recommended by some practitioners. In many respects its action seems somewhat comparable to that of eserine, pilocarpine and arecoline. Apparently it exerts a powerful stimulant effect upon the excretory organs and tends to overcome the depression arising from severe wound infection. Its use has been largely limited to critical cases where immediate stimulation is essential for avoiding impending death. The available data upon the subject scarcely suffice as a reliable basis for judging of its comparative merits and it deserves more extended clinical study as related to wound infection in horses.

In suggesting a common plan for the local handling of wound infection, we placed in the second position, disinfection, the kill-

ing of the pathogenic bacteria and destruction of their toxins in the wound; in the systemic handling we may in an analogous fashion ascribe to disinfection the second position of importance.

At the very outset, however, the question may arise, can we successfully apply systemic disinfection? The answer must be in the affirmative in some cases at least. In the malarial diseases of man it is generally, if not universally, conceded that quinine destroys the plasmodium. In human syphilis mercury and iodine are claimed to have an actual bactericidal action upon the micro-organism of that affection. Among the diseases of domestic animals, probably, the two in which systemic disinfection has been most clearly demonstrated clinically are actinomycosis and botryomycosis, each wound infections of a chronic type. Chronic infections offer better opportunity for clinical study because of their long duration and horizontal course, but, in our judgment, we may just as truly disinfect the system in acute infections.

Actinomycosis, because of its nature and its known bacteriology, offers especially favorable opportunities for a clinical study of the effects of *systemic* medication upon *local* infection. For some decades it has been recognized that systemic medication with iodine exerts a specific bactericidal effect upon the pathogenic organisms localized in a manner which might almost be termed extra-systemic. Their massing in somewhat isolated groups would suggest extraordinary difficulty in reaching them through drugs introduced into the system, without jeopardizing the life of the patient and yet it is of all animal diseases the most uniformly recognized as being subject to disinfection through the system.

Next to actinomycosis, and in a sense of even more interest in our theme, is botryomycosis. This malady we know as a wound infection almost wholly limited to the horse and behaving very much after the fashion of actinomycosis.

Some investigators assert that it is caused by a specific organism known as the *botryomyces equi*, while others contend that the affection is due to a form of bacteria not distinguishable from

those met with frequently in ordinary wound infection, and that the disease acquires its clinical characters from the peculiarities of the reaction of the tissues of the horse to bacterial irritation. For our purposes we may well leave the biologic controversy wholly to others and concern ourselves with the important fact that botryomycosis of the horse is a wound infection and that it departs but little, if at all, in its biologic characters from purulent wound infection; and that nevertheless it is amenable to systemic disinfection by the same drug as actinomycosis, iodine.

The specific effect of iodine, in the form of potassa iodide, upon this disease has been well known and recognized by numerous veterinarians for several decades. We have had occasion to use the drug in combination with operative interference in numerous cases.

In one instance there entered our clinic on October 3, 1896, a horse showing an old indurated scar from fistulous withers, a similar record of prior poll evil and a small abscess upon the poll. With free incision and severing of the ligamentum nuchæ, followed by daily disinfection, the poll evil had apparently recovered by January 5 and on March 12, 1897, the patient was again presented for treatment of fistulous withers. Again free opening of the abscess was followed by healing, but the sclerosis of the tissues persisted until we eventually prescribed iodide of potash in one-half ounce doses for 16 days, which caused a disappearance of the induration, a markedly increased vigor of the patient and a permanent cure of the poll evil and fistulous withers.

In this instance the poll evil and fistulous withers had apparently been alternating for a time prior to entrance in our clinic and throughout the induration of the tissues had remained, accompanied by a definite wound infection cachexy, with debility and emaciation. The action of the iodide to all clinical appearances was specific, dissipating at one and the same time the wound cachexy and the localized chronic infection. Not alone was it clinically demonstrated that the iodine introduced into the system had accomplished disinfection in a peripheral part of the body,

but it had surpassed the efficiency of locally applied disinfectants and had accomplished what the latter had failed to do. The results intimate that the infection had become disseminated amongst the living animal tissues and had penetrated an important distance beyond the wound surface, so far that the local application of the disinfectants was impotent.

Another clinical observation illustrative of this disinfectant action was afforded by a four-year gelding entered February 8, 1897, with a pectoral fistula into which a probe could be passed some eight inches. The history of the case as related by the owner was that the animal had received a wound in the pasture when but three months old, presumably from a snag, and that a digital exploration of the wound failed to reveal any foreign body or other noteworthy conditions. The wound healed promptly, and so remained for more than two years, but the animal showed intermittent lameness. Finally, when about three years old, recurrent abscessation in the pectoral muscles became established. First, the animal would become severely lame, the pectoral muscles would become swollen, tense, painful, an abscess would mature, rupture and discharge a small amount of pus while the lameness would disappear and the patient return to work for three or four months when the previous clinical history would repeat itself. Once Prof. Law had opened the fistula and failed to find any cause for its recurrence, despite a diligent search. All this time the general health of the patient was excellent; he was fat, vigorous and had a healthy, glossy coat.

Believing from the history that a foreign body was deeply lodged in the part, we secured the animal and carefully traced the tortuous fistula then present for a distance of about eight inches across the long axis of the sterno-aponeuroticus muscle, and to a depth of two inches, looking in vain for the suspected foreign body and finding nothing to warrant the continuance or recurrence of the fistulous tract.

The wound healed tardily, its margins became swollen, indurated and on the whole the wound seemed very irresponsive to disinfectants.

On February 13 the patient was put on 4.8 drams potassium iodide daily while to the wound was applied an iodine-potassium iodide solution.

The result was quickly apparent; the wound margins softened rapidly and soon became reduced in volume to the normal, while the granulations assumed a healthy aspect and the wound cavity closed rapidly. The result was a prompt and enduring recovery.

Quite parallel in many respects was the case of an eight-year draft gelding used on a nursery farm, which had been lame for two years, much of the time to a sufficient degree to put him out of work. Along with the lameness there was recurrent abscessation of the flexor tendons a few inches above the fetlock where, at the sides, close to the suspensory ligament, small abscesses would form, mature, rupture and leave a slowly healing fistula and a slight degree of permanent induration. The abscesses and fistulae had been handled by a neighboring veterinarian without result.

When presented, March 25, 1903, there was present a small fistula above the fetlock from which there was a slight discharge of thin pus, the animal was unworkably lame, though in excellent general condition.

Secured upon the operating table, the fistula was opened freely, but nothing discovered to explain its persistence or the recurrence of abscesses. The wound was dressed regularly with Tr. Iodine, but the progress was unsatisfactory in relation to suppuration, healing and lameness.

On April 10 we began a course of potassium iodide, administering one ounce daily till 14 ounces had been given.

Again the clinical evidence of the disinfecting power of the drug was strong and the progress of the case was fairly rapid and uninterrupted so that the wound was soon healed and later the patient was turned to pasture where he could be watched, but there was no recurrence of the abscesses and the lameness gradually receded until he was returned to work the following autumn permanently recovered.

In another case, while the result was unsatisfactory, the internal medication was nevertheless interesting.

The patient was a six-year gelding entered in our clinic October 31, 1899, the owner having procured the animal during the previous winter, and soon afterward there occurred an abscess in the right flank followed by a fistula and later another abscess occurred in the left flank.

The horse was somewhat thin in flesh, but looked well, though perhaps moving a trifle stiffly. In each inguinal region was a fistula through which a probe could be passed up to and through the inguinal ring. There were no inguinal tumors. Manual exploration per rectum revealed two large, indurated masses projecting upward from the abdominal rings, the tumors being some four inches in diameter and projecting upward half way across the pelvic cavity, largely obstructing it. The tumors were very hard, somewhat uneven and conoid, the base of the cone resting upon the abdominal ring. Behind these two basic tumors other fibroid abscesses could be detected beneath the peritoneum, upward and forward along the abdominal walls, varying in size from two or three to five inches in diameter.

Diagnosis: Scirrhus cord (botryomycosis) following castration, probably four or five years before. The absence of inguinal tumors suggested that scirrhus cord having occurred the external tumors had been excised close against the abdominal ring converting the case into what we might term internal or abdominal scirrhus cord.

The revelations of rectal exploration made operative interference virtually hopeless and, instead, relief was sought by means of the internal administration of potassium iodide. The patient, weighing around 1,000 pounds, received one ounce on November 1, two ounces daily until the 5th, when it was omitted until the 7th, when two ounces daily were again given till the 16th, then discontinued till the 20th, after which one ounce daily was given till December 10, when its discontinuance was necessitated by the advent of iodism. In forty days the patient had received 48 ounces of potassium iodide, with but slight iodism evidenced

by loss of appetite, lachrymation and nasal discharge. Within five days the tumors emanating from the internal inguinal ring was markedly softer, though not perceptibly smaller, and in eight days they were definitely decreased in size and for a time they continued to diminish in volume and soften in consistency, but the effect was not continued nor efficient. The effect was clear enough, but could not be pushed to complete elimination.

Under chloroform two of the abscesses beneath the peritoneum were opened through the abdominal wall, an assistant with his hand on the tumor, *per rectum*, directing the incision. In the same manner one internal inguinal tumor was incised, but the pus cavity not found. Several times efforts at evacuating tumors by incision were made with varying success. Once we observed the rectal expulsion of pus, evidently the result of the rupture of an abscess into the rectum or floating colon. Wound infection cachexy gradually became evident, the appetite capricious, emaciation marked, the movements of the animal slow and stiff and on April 4 he was destroyed.

Autopsy revealed extensive peritonitis; adhesions were present between the colon and diaphragm, with abscesses in their walls. Adhesions were present between the fourth section of the colon and the duodenum. The liver was adherent to duodenum, stomach and diaphragm. The fourth portion of the colon was adherent to the right kidney, which latter contained an abscess weighing about ten pounds. Abscesses varying in size from one to five inches in diameter were found in the diaphragm, spleen, between stomach and spleen, in the pelvic connective tissue, between the bladder and pelvis, causing adhesion, and beneath the peritoneum here and there along the floor and walls of the abdomen from the pubis to the sternum.

The abscesses all had the characteristics of botryomycosis, thick, yellowish pus, variable in quantity, and very thick, fibrous, indurated walls. The combined weight of the abscesses was estimated at forty pounds.

We here had to contend with a volume of infection beyond the power, so far as we now know, of systemic disinfection and

presented insurmountable operative obstacles, yet the specific effect of the iodine was present and clearly recognizable.

Reasoning from these clinical evidences of the efficiency of potassium iodide in chronic purulent infections we have made a general application of these facts to the handling of acute purulent infections occurring as a sequence to surgical or accidental wounds.

Illustrative of this use is that of extensive purulent infection in a two-year colt following castration, the scrotum being greatly swollen, the colt weak, with loss of appetite, high fever and profuse suppuration. Rectal exploration revealed an abscess six inches in diameter extending into the abdominal cavity from the internal abdominal ring, whither the infection had traveled along the spermatic cord.

Along with rigid local disinfection, the colt was given one-half ounce of potassium iodide daily for about two weeks, during which time the intra-abdominal tumor gradually receded and finally disappeared while the systemic disturbances gradually abated, the appetite returned and complete recovery took place.

Similarly we frequently prescribe potassium iodide in cases of extensive suppuration of wounds with serious systemic complications; in infected wounds of tendon sheathes, whether operative or accidental, in threatened chloroform pneumonia and the like.

In other cases we rely upon quinine as an internal antiseptic in preference to or in conjunction with the potassium iodide, which may be well illustrated by the following case:

A four-year mare affected with nymphomania was entered in our clinic May 28, 1907, for ovariectomy, which was performed on the following day. On May 30 her temperature was 101.5 F. and on June 1 at 3 P. M. it was 103.3, the abdomen tense and tucked up, tender on pressure, respiration shallow, pulse weak and thready, appetite in abeyance. A diagnosis of extensive septic peritonitis was made. She was given 1 ounce potassium iodide and 1½ ounces quinine. At 7 P. M. the temperature had not improved and another 1½ ounces quinine was given. At

11 P. M. the temperature had reached 104, the expression anxious, pulse very weak, no food or water taken. A third dose of quinine was given with $1\frac{1}{2}$ ounces alcohol, making a total of $4\frac{1}{2}$ ounces quinine in eight hours, to a mare weighing less than 1,000 pounds. Up to this time the symptoms had indicated an early fatal termination, as she was failing very rapidly, but now her fever abated and on the following morning she appeared bright and comfortable, temperature 102, appetite fair and general indications good. During the day she received 3 ounces of quinine and 1 of potassium iodide. During this and the preceding day she had received enemata of warm sodium bicarbonate solution.

On June 3 in the morning the temperature was normal and at 8 P. M. it had again risen to 102.8, accompanied by colic, on which account she was given $1\frac{1}{2}$ ounces powdered ginger and 2 ounces quinine, which afforded relief.

June 4 at 8 A. M. the temperature was 101.5, with good pulse and appetite. One and one-half ounces potassium iodide was given. At 8 P. M. the temperature was 102.8 and $1\frac{1}{2}$ ounces quinine sulphate was administered. On June 5, 6 and 7 slight fever was present, but the patient was bright, appetite good and bowels moving normally. During this time she received daily 1 ounce potassium iodide and $1\frac{1}{2}$ ounces quinine, after which medication was discontinued and recovery was uneventful.

This small animal had taken between 3 P. M. on June 1 and June 8 $15\frac{1}{2}$ ounces quinine and $6\frac{1}{2}$ ounces potassium iodide.

We could enumerate many cases of a similar character, but they could not well be more illustrative. In many cases of acute septic fever we administer the quinine alone and have similar results, though we frequently think the combination advantageous.

When the infection is acute, the fever high and the case critical we prefer the quinine; when not so urgent and more deliberation is practicable, we prefer the iodide, and now and then we see fit to combine or alternate them.

Our dosage, it will be observed, is quite in excess of that recommended by writers on *materia medica*. Ours may be larger than advisable. In disinfection, according to our view, we must introduce into the mass to be disinfected an amount of the drug sufficient to induce the desired result. If we take a jar of infected bouillon and attempt to destroy its bacteria, should we add a volatile disinfectant drop by drop, slowly, the first may volatilize and escape before the succeeding drops have entered the mass, and a sufficient concentration to disinfect may not occur, although more than enough of the disinfectant has in time been used. In the animal body most disinfectants are rapidly excreted, and if given in small doses, too far separated, may never reach that concentration essential to efficiency, regardless of the total volume eventually consumed.

Others plead expense as an argument against these drugs in the quantities named, but we believe that this is not well grounded. Drugs are cheaper than calls or failures. The expense is by no means excessive, and, compared with many forms of treatment, is very economical. The sera advertised for similar purposes are far more costly and yet find advocates, even though probably far less efficient.

Many would hesitate to administer such doses lest they prove toxic. The horse is almost immune to the toxic action of iodine, and when iodism finally occurs as a result of heavy administration, it is confined to a brief loss of appetite with slight flow of tears. Strangely enough, some writers give a larger dose for the ox than the horse, when the latter will withstand five to eight times the quantity that the former can endure.

The horse also has a high power of resistance to the toxic effects of quinine. Rarely by heavy dosage we have noted trembling of the limbs, unsteadiness and more or less profuse diarrhæ.

The efficiency of quinine in wound fever in the horse has been denied, but usually on wholly inadequate grounds. We find the small doses usually recommended for these cases wholly worthless and a waste of the drug, and only get the desired results when it is rapidly pushed to or near the physiologic limit.

That limit is to be determined separately for each case. In the instance mentioned of septic peritonitis the amount of quinine given probably seems to many as unwarranted and unsafe. It was neither as is amply shown by the results: Here was a critical case, apparently doomed to early death, local disinfection insurmountably barred and some mode of systemic disinfection offering the only shadow of hope for the life of the patient. In our observations, the more intense the infection the larger dose required and ordinarily the first symptoms of toxic action do not appear until the septic condition has been overcome or controlled.

Various other drugs are highly recommended for these uses by writers and practitioners. Among these are calcium sulphide and sodium sulphite, but we have not been able to observe good clinical evidence of their efficiency.

Fröhner and others highly recommend camphor and alcohol, both of which are doubtless good, and especially the latter.

More recently animal sera have been proposed and commended by some, but their use is as yet in the experimental stage. The antistreptococcic and polyvalent sera are offered as effective remedies against wound infections, but they have not yet won general confidence. The profession, as a whole, probably admits the basic correctness of the theory, but are not yet ready to accept in practice the products offered. Wound infection is an extremely variable condition, due to a well nigh endless variety of organisms and, while most practitioners might accept the protective serum made from a given form of bacteria for infection due to that special, he does not know, as a rule, the species with which he is dealing in a given case and is not ready to rely upon a serum made from other species. The polyvalent serum, to the average mind, adds to complexity without heightening efficiency. The problem of serum therapy in wound infection is one of great importance which may ere long prove of great practical utility.

We have brought forward this subject not to in any wise supplant the proper local handling of wounds; in many cases that alone suffices abundantly, but in others, like in the spayed mare

above related, with septic peritonitis, no opportunity for local disinfection is presented, and entire reliance needs be placed upon systemic disinfection. A large proportion of instances of wound infection present neither of these extremes, but occupy a middle ground where both local and systemic handling are available and demanded, but on the whole we have greatly neglected a clinical study of the problem presented.

THE salary of the Chief Veterinarian in the Philippine Islands is fixed at \$2,500 per annum.

SCIENCE GUILTY OF MANY MISNOMERS.—There are terms in certain departments of science that positively misname the products to which they are applied.

The word "oil" in its more comprehensive and indiscriminate uses is made to include hydro-carbons, like petroleum, and also many other substances that have an oily appearance, like "oil of vitriol," which is not oil at all, but sulphuric acid.

Strictly speaking, the mineral oils, including all petroleum products, are not oil, although we speak of "coal oil" and "kerosene oil."

The best classifications of oils do not include mineral hydro-carbons, like naphtha, paraffin and petroleum, but treat only the two well-defined groups—fixed oils and fats, and the essential or volatile oils.

"Copperas" is not copper, but sulphate of iron. "Salt of lemon" has nothing to do with the fruit of the lemon tree, but is potassium binoxalate, or potash treated with oxalic acid.

"Carbolic acid" is not an acid, but a phenol. In structure it is allied to the alcohols, and has only slight acid properties. "Soda water" has no trace of soda. "Sulphuric acid" contains no sulphur. "Sugar of lead" is innocent of sugar.

"Cream of tartar" has nothing to do with cream, nor "milk of lime" with milk. "German silver" is a stranger to silver, and "black lead" is not lead at all, but graphite. "Mosaic gold" is a sulphide of tin.

These misleading names have come down from the vocabulary of an early and inexact chemistry. As popular science extends, the old terms are yielding to the more scientific nomenclature.

THE VETERINARIAN AND MEAT INSPECTION.

BY SAMUEL G. HENDREN, V. M. D., MONTCLAIR, N. J.

A paper presented to the Veterinary Medical Association of New Jersey.

The public interest created by the recent agitation concerning the meat supply of this country has caused many veterinarians engaged in private practice to direct their attention to the subject of meat inspection. This is perfectly natural, because the importance of having our meat properly inspected for wholesomeness and disease, is becoming more appreciated every day; and wherever intelligence and conscientiousness prevail, the veterinarian is looked to for this inspection. These conditions have brought about a great extension of meat inspection work, in many towns and cities having a regular meat inspection system, and the inauguration of such work in many communities where no attention was ever before paid to the wholesomeness and healthfulness of their meat supply. These circumstances have made it possible for quite a number of veterinarians to see awaiting them in the near future the position of meat inspector in their community. It is the exception for the veterinary practitioner to find the time and opportunity to apply himself to practical meat inspection on the killing beds, and unless he has had some such experience he naturally feels a desire for a little more knowledge when he accepts a position as meat inspector. It is for these men more especially that I have prepared this paper, my object being to present some practical information that will enable them to fill their respective positions with a little more confidence in themselves.

In the post mortem inspection of food animals a good knowledge of certain regional anatomy, together with the physiology associated with it, will be found most useful. This is more especially true of the Lymphatic System, the important organs, and the circulatory system. The location of the different groups

of lymphatic glands is considered very important. The inspector will probably be occasionally saved from quite an embarrassing position if he is well acquainted with how many ribs each animal has, he should be able also to readily point out in the carcass such structures, as the Adrenals, Thyroid or Thymus glands; these tissues are now used extensively in medicine as therapeutic agents, and may be the subject of inquiry at any time. In the inspection of meat the examination of an eviscerated carcass for disease is valueless so far as an negative diagnosis is concerned; for unless some lesion of disease remains, how are we to tell if any disease was present? Any person who would be unscrupulous enough as to place the carcass of a diseased animal on the market would most surely be shrewd enough to first remove all evidence of disease; but such trimming sometimes is in itself evidence of something wrong, as in the case of the pleura being stripped from the ribs, or the peritoneum from its usual attachments; as this procedure has been followed the circumstances would look very suspicious, and the carcass should be condemned. It is possible for an animal to suffer from an extensive tuberculosis of the lungs, liver, glands and other tissues, and yet the dressed carcass will show no lesions of the disease that will lead to a diagnosis. We will then proceed with the understanding that by meat inspection we mean the ante-mortem and post-mortem examination of the animal at the time of slaughter. In describing a method of meat inspection, I can do no better than follow the rules and regulations of the Bureau of Animal Industry issued for the guidance of the government inspectors. Here we find the animal to be converted into meat or meat food products, followed by the inspector, from the ante-mortem examination to the form in which it is finally offered for sale to the consumer. Before any attempt is made at inspection under government regulations, the sanitary conditions and facilities for inspection must first meet the approval of the inspector in charge, a careful ante-mortem examination is made of all animals about to be slaughtered, all those found suffering from any disease or condition that would be liable to impair their

wholesomeness or healthfulness as food are tagged with a metal tag as suspects, and must be killed separate from the regular killing. At the time of slaughter a careful post-mortem examination is made of all animals, special care being taken that every part of each individual animal is kept separate for identification, until the animal has been passed for food or otherwise disposed of. These parts usually consist of the head, tail, caul, thymus gland, bladder and the entire viscera. The inspector sees every animal eviscerated and in the case of hogs a special examination is made of the cervical glands for tuberculosis. If any lesions of disease are found that would probably render the meat unfit for food, the carcass is tagged and retained for a final examination, when it is either passed for food, lard or tallow or condemned. This is a very rough sketch of meat inspection as conducted under the rules and regulations of the Bureau of Animal Industry, but it is sufficient to demonstrate the principals involved, and the importance that should be attached to them. From this rough outline you can readily see that the inspection of meat is not considered a very simple matter by those best fitted to judge. Contrast this method, if you will, with procedure we too commonly find in some cities and towns, where a layman acts as meat inspector, his duties being principally to pass on for decomposition the several carcasses and cuts he may find offered for sale in the different market places and shops. You can then see more clearly how inseparable are the veterinarian and intelligent meat inspection. To become a competent meat inspector, it is necessary that a good knowledge be had of comparative anatomy, physiology, pathology, bacteriology, sanitary science and other important branches of veterinary medicine. Naturally a man thus qualified will be a veterinarian and his knowledge of and experience with food animals should command for him the distinction of an expert in the inspection of meats. I believe that veterinarians should be more active in pressing this point. I believe they have a right by virtue of their special knowledge to insist on having their profession represented on their local boards of health; and in all other positions where a

scientific knowledge of animals and their diseases is a necessary qualification to properly perform the duties of the office. Probably many of you can even now recall instances in your own locality where a layman is holding a position, the duties of which require the knowledge of a veterinarian.

It is not sufficient that we know our worth we must let the world know it. In the inspection of meat the first step is to have the place of slaughter and all places where the meat is handled, together with all apparatus, utensils and attendants, in a cleanly and sanitary condition. This is absolutely necessary if a clean and wholesome meat supply is to be produced. It is important that the inspector be provided with the proper facilities for inspecting. These consist simply of having the slaughtering done in a manner that will enable the inspector to properly perform his duties. This is a very important feature in a large abattoir where animals are slaughtered very rapidly, but where slow methods are followed it is not so difficult to inspect. An ante-mortem examination should be made of every animal before it is slaughtered. This examination will often cause us to look for conditions on post-mortem we would not have looked for had we not made the ante-mortem. A careful ante-mortem examination makes the post-mortem more intelligent and just. A post-mortem examination of a carcass for food cannot maintain its full importance without a careful ante-mortem. It is often very probable that the observations made on ante-mortem will decide an inspector for or against a carcass on post-mortem. The post-mortem examination is really the meat inspection proper, the animals commonly slaughtered for food in this country are cattle, calves, sheep and hogs.

Some conditions and diseases are common to all these special, such as injuries, bruises, suppurative conditions, emaciation, pregnant and parturient conditions and the acute diseases. I will say but a very few words regarding these conditions as all veterinarians are well able to pass upon an animal when found suffering from any of them. Bruises, injuries and suppurative conditions should be treated according to their extent; if of such

a nature as to affect the entire carcass, the whole carcass should be condemned. The carcass of all animals showing advanced pregnancy, or those in a parturient condition, having within ten days given birth to young, can be permitted to be rendered into lard, or tallow, provided no septic infection or other disease or condition is present, that would not warrant it. In such a case it should be condemned. Carcasses of emaciated and anæmic animals which show a serious infiltration of the muscles, producing a slimy appearance, are unwholesome and should be condemned. The carcass of an animal that has suffered from any of the acute diseases sufficiently to produce a generalized inflammation of the lungs, pleura, peritoneum, intestines or uterus, should be condemned. All animals in a dying condition should be condemned. Some diseases and conditions are found more especially in some one species of animal.

In calves immaturity is a common condition, especially in the spring of the year. The carcass of no animal under three weeks of age should be passed for food; and when the muscles are pale, devoid of fat, flabby and moist refusing to firm, the carcass should be condemned irrespective of age, as it has been ill nourished and is very unwholesome for food. In sheep caseous lymph adenitis is sometimes found, but when the lesions are confined to the superficial lymphatic glands, or a few nodules in an organ, if the carcass is well nourished it may be passed for food, after the diseased parts have been removed. If the disease shows a tendency to be extensive or the carcass emaciated, it should be condemned. Nodular disease of the intestines is a very common disease in sheep. It is caused by the *Cæsophagostoma Columbianum* and is characterized by small grayish nodules in the intestinal walls. These nodules, when cut into, show a green color inside. Unless so extensive as to produce some constitutional disturbance this disease does not condition the carcass. Hogs suffer from several skin diseases, such as *Urticaria*, *erethema* and various blotches and discolorations; if at all extensive the carcass should be skinned. The diseases that require

the most attention in hogs are hog cholera, swine plague and tuberculosis. Tuberculosis will be taken up in connection with the same disease in cattle.

The lesions of hog cholera and swine plague are found principally in the lymphatic glands, skin, kidneys, bones, lungs, heart, serous membranes, spleen and intestines. The lymphatic glands show a general hemorrhagic condition throughout the body; the heart, kidneys, skin and serous membranes show hemorrhagic spots; the intestines ulceration of the mucous membrane, especially around the Ilio Cæcal valve; the lungs, all stages of inflammation. You will find these lesions present according to the nature and extent of the disease, and carcasses are graded as fit for food, lard or offal accordingly. The rules and regulations of the Bureau of Animal Industry grade such carcasses as follows:

Carcasses showing well marked and progressive lesions of hog cholera and swine plague in more than two of the organs, skin, kidneys, bones or lymphatic glands shall be condemned.

Carcasses showing slight lesions which are confined to the kidneys and lymphatic glands may be passed.

Carcasses which reveal lesions more numerous than those described for carcasses to be passed, but not so severe as the lesions described for carcasses to be condemned, may be rendered into lard, provided they are cooked by steam for four hours at a temperature not lower than 220 degrees F.

In inspecting carcasses showing lesions of the skin, bones, kidneys or lymphatic glands, due consideration shall be given to the extent and severity of the lesions found in the viscera.

Cattle suffer quite frequently from Actinomycosis, but fortunately it is most often confined to the regions of the head and throat affecting the bones and glands of these regions. When there is no evidence of the disease having extended to any other part of the body, the affected part, including the entire head and tongue, are removed and condemned; the balance of the carcass, if otherwise fit for food, is passed. If the disease has extended to any other part of the body, the carcass is treated the same as

for tuberculosis. The inspection for tuberculosis of animals killed for food is one of the most important duties of the meat inspector. It is considered so important by the Bureau of Animal Industry that a special examination is made of the cervical glands of all hogs for this disease alone. I think we all feel satisfied that tuberculosis can be conveyed from the domestic animals to man, and for this reason we should be extremely careful in examining animals affected with this disease intended for food.

The records of the Bureau of Animal Industry show that of 96,000 hogs retained for tuberculosis, 92 per cent. were affected in the cervical glands, and of this number 30 per cent. showed no other lesion.

In the "American Veterinary Review" for December, 1906, Dr. Ward, of Minnesota, reports some very interesting facts concerning this disease among hogs. He reports that one packing company alone lost at South St. Paul \$50,000 a year from tubercular hogs that were condemned. He also states that 350 hogs shipped in from Southern Minnesota were condemned in one month; and that 75 per cent. of a load have been repeatedly condemned for tuberculosis. He also reports a case where 72 hogs of a shipment were condemned for tuberculosis, and investigation showed that these hogs had eaten a cow presumably dead from tuberculosis, and the hogs on this farm fed behind a herd of cattle, 50 per cent. of which Dr. Ward thought tubercular. I mention these reports to call your attention to the prevalence of tuberculosis among our food animals. This becomes a matter of vital importance when we stop to consider the results of the recent experiments of our Bureau of Animal Industry at Washington. These experiments have shown that an acute miliary tuberculosis can be produced in a very short time by the injection of virulent tubercle bacilli in the tail of an animal. It seems almost beyond question that a pulmonary tuberculosis is very frequently contracted through the digestive tract. I cannot report these experiments here, but you should all read them. I am sure you will find in them many very interesting discoveries.

They are contained in Bulletins Nos. 38, 88 and 93. I think it has now been definitely concluded that hogs contract tuberculosis principally through the digestive tract by feeding on the milk and feces of tubercular cattle. Dr. Mohler demonstrated in his experiments that pulmonary tuberculosis could be contracted through the digestive tract. He says that the location of tuberculous lesions in the body are undoubtedly dependent upon other causes than the channel through which the infectious material enters. Tubercle bacilli may pass through the intestines and glands without leaving any lesions, and locate in the lungs, pulmonary glands, liver or some other tissue. The reason why the lungs and liver are so frequently the seat of tuberculosis is the tubercle bacilli pass through the lymph glands and vessels to the blood stream, and when they reach the great capillary system of these two organs they are filtered out and remain there. That pulmonary tuberculosis is very frequently contracted through the digestive tract is very important when considered in connection with meat inspection. It is for this reason that I have gone so far into the subject in this paper. It seems that the veterinary profession should do much to reduce the number of tubercular animals on the farm and in the feed lot. I think something can be gained along this line if we as veterinarians would impress more fully upon the owners of such animals the danger of having a tubercular animal on the place, and especially of feeding hogs on the milk and feces of tubercular cattle.

If a hog has tuberculosis the sub-maxillary glands will almost invariably be affected. In steers we find very little of the disease. Occasionally it will appear in good cattle, but it is most frequently seen in cast-off dairy cows. Any further description of the disease proper is unnecessary, as you are all very familiar with it. I will now take up the disposition of a tubercular carcass. The highest point of efficiency in this respect, I think, has been reached in the Rules and Regulations of the Bureau of Animal Industry. These I will follow:

(d) Pyemia and septicemia.—Carcasses showing lesions of either of these diseases shall be condemned.

(e) Rabies.—Carcasses of animals which showed symptoms of rabies before slaughter shall be condemned.

(f) Tetanus.—Carcasses of animals which showed symptoms of tetanus before slaughter shall be condemned.

(g) Malignant epizootic catarrh.—Carcasses of animals affected with this disease and showing generalized inflammation of the mucous membranes shall be condemned.

(h) Hog cholera and swine plague.—(1) Carcasses showing well-marked and progressive lesions of hog cholera or swine plague in more than two of the organs (skin, kidneys, bones, or lymphatic glands) shall be condemned.

(2) Carcasses showing slight lesions which are confined to the kidneys and lymphatic glands may be passed.

(3) Carcasses which reveal lesions more numerous than those described for carcasses to be passed, but not so severe as the lesions described for carcasses to be condemned, may be rendered into lard, provided they are cooked by steam for four hours at a temperature not lower than 220 degrees F.

(4) In inspecting carcasses showing lesions of the skin, bones, kidneys, or lymphatic glands, due consideration shall be given to the extent and severity of the lesions found in the viscera.

(i) Actinomycosis, or lumpy jaw.—(1) If the carcass is in a well-nourished condition and there is no evidence upon post-mortem examination that the disease has extended from a primary area of infection in the head, the carcass may be passed, but the head, including the tongue, shall be condemned.

(2) If the carcass is in a well-nourished condition and the disease has extended beyond the primary area of infection, the disposition shall be made in accordance with the regulations relating to tuberculosis.

(j) Caseous lymphadenitis.—When the lesions are limited to the superficial lymphatic glands or to a few nodules in an organ, involving also the adjacent lymphatic glands, and the carcass is well nourished, the meat may be passed after the affected parts are removed and condemned. If extensive lesions,

with or without pleuritic adhesions, are found in the lungs, or if several of the visceral organs contain caseous nodules and the carcass is emaciated, it shall be condemned.

(*k*) Tuberculosis.—All carcasses affected with tuberculosis and showing emaciation shall be condemned. All other carcasses affected with tuberculosis shall be condemned, except those in which the lesions are slight, calcified, or encapsulated, and are confined to the tissues indicated in any one of the following five paragraphs, or to a less number of such tissues, and excepting also those which may, under paragraphs (6) and (7) below, be rendered into lard or tallow.

(1) The cervical lymphatic glands and two groups of visceral lymphatic glands in a single body cavity, such as the cervical, bronchial, and mediastinal glands, or the cervical, hepatic, and mesenteric glands.

(2) The cervical lymphatic glands and one group of visceral lymphatic glands and one organ in a single body cavity, such as the cervical and bronchial glands and the lungs, or the cervical and hepatic glands and the liver.

(3) Two groups of visceral lymphatic glands and one organ in a single body cavity, such as the bronchial and mediastinal glands and the lungs, or the hepatic and mesenteric glands and the liver.

(4) The cervical lymphatic glands and one group of visceral lymphatic glands in each body cavity, such as the cervical, bronchial, and hepatic glands.

(5) Two groups of visceral lymphatic glands in the thoracic cavity and one group in the abdominal cavity, or one group of visceral lymphatic glands in the thoracic cavity and two groups in the abdominal cavity, such as the bronchial, mediastinal, and hepatic glands, or the bronchial, hepatic, and mesenteric glands.

(6) Carcasses affected with tuberculosis, in which the lesions of the disease are located as described in any one of the preceding five paragraphs, but are slight and in a state of caseation, or liquefaction necrosis, or surrounded by hyperemic zones, and also those in which slight, calcified, or encapsulated lesions are

found in more visceral organs or more groups of visceral lymphatic glands than are specified in any one of the preceding five paragraphs, may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220 degrees F. for not less than four hours.

(7) Carcasses in which the cervical lymphatic glands, one organ, and the serous membrane in a single body cavity, such as the cervical lymphatic glands, the lungs, and the pleura, or the cervical lymphatic glands, the liver, and the peritoneum, are affected with tuberculosis may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220 degrees F. for not less than four hours.

(8) All condemned carcasses, parts of carcasses, or organs showing lesions of tuberculosis shall be deposited in receptacles provided for that purpose, and shall either be tanked at once or be locked in the "condemned" room until such time as an employee of the Department can see that they are placed in the tank.

(9) All heads and other parts showing lesions of tuberculosis shall be condemned.

(1) Texas fever.—Carcasses showing sufficient lesions to warrant the diagnosis of Texas fever shall be condemned.

It has not been the intention in this paper to treat the subject of meat inspection in any other than a very general manner. I have endeavored to present the principal features of the subject and will let it for the members of this association to bring out any details they may desire, according as they may see fit in the discussion.

RATS—A NATIONAL PEST.—Rats cost the United States nearly \$56,000,000 annually, according to the biological survey of the Department of Agriculture. Inoculation and all other methods studied by scientists for the destruction are said not to be equal to the old-fashioned rat trap.

FILING SYSTEM FOR BULLETINS, MISCELLANEOUS PAMPHLETS, AND CLIPPINGS.

By M. H. REYNOLDS, *Professor of Veterinary Medicine, University of Minnesota.*

It became necessary for the writer to adopt a different system of filing bulletins and similar matter and the system herein described was accordingly devised. The old system of filing in labeled pasteboard cases where one has but a small collection is fairly satisfactory, but there are several objections; for instance, some of the cases are usually over full, and others which take up just as much shelf room will have but one or two bulletins.

Again, when one wishes to find a certain bulletin on tuberculosis, for instance, he must look through the entire lot of bulletins on tuberculosis to find the one desired. The system of binding bulletins on the same or similar subjects and placing them in the library is quite satisfactory for a few bulletins on certain subjects and especially those of unusual importance but is not well adapted for miscellaneous bulletins, reprints, etc.

A collection which the writer has been accumulating for nearly fifteen years in station and university work was recently filed by the system about to be described in a very small space. By this system it is a very simple matter to put a bulletin in a proper place or to find a given bulletin.

Key to filing system for bulletins, miscellaneous pamphlets, and clippings. (All mixed and miscellaneous placed alphabetically by subject, and within subject alphabetically by author, using first author if more than one, unless indicated otherwise by underscoring.):

o. General Topics—

- .1 Abbreviations.
- .2 Bibliography.

-
- .3 Education.
 - .01 Veterinary.
 - .02 Industrial.
 - .03
 - .09 Mixed and miscellaneous.
 - .4 Ethics.
 - .5 Indexes.
 - .6
 - .9 Mixed and miscellaneous.
- 1 Diseases. (Alphabetically except as given decimal.) (For parasitic diseases see parasites.)—
- .1
 - .2
 - .3 Hog cholera and swine plague.
 - .4 Tuberculosis.
 - .01 General discussion (bovine).
 - .02 Mode of infection and spread in the body.
 - .03 Dissemination.
 - .04 Human.
 - .05 Tuberculin.
 - .06 Legislation.
 - .07 Vaccination.
 - .08 Avian and porcine.
 - .09 Mixed and miscellaneous.
 - .5 Poultry diseases.
 - .6
 - .7 Texas fever.
 - .8
 - .9 Mixed and miscellaneous.
2. Parasites—
- .1 External.
 - .01 Lice.
 - .02 Mites.
 - .03 Ticks.
 - .04 Flies.

- .05 Dips and dippings.
- .06
- .07
- .08
- .09 Mixed and miscellaneous.
- .2 Internal.
 - .01 Nodule diseases.
 - .02 Stomach worms.
 - .03 Trichina.
 - .04 Flies, *i. e.*, bot.
 - .05 Tapeworms.
 - .06
 - .07
 - .08
 - .09 Mixed and miscellaneous.
- .9 Mixed and miscellaneous.
- 3. Materia Medica and Therapeutics—
 - .1 Medicines.
 - .01 Medicinal plants.
 - .02 Prescriptions.
 - .03
 - .09 Mixed and miscellaneous.
 - .2 Poisoning.
 - .01 Poisonous plants.
 - .02 Poisonous medicines.
 - .03
 - .09 Mixed and miscellaneous.
 - .3 Stimulants and narcotics.
 - .4 Disinfectants.
 - .5 Biological products.
 - .6
 - .9 Mixed and miscellaneous.
- 4. Domestic Animals—
 - .1 Cattle.
 - .01 Feeding.

-
- .02 Breeding.
 - .03
 - .04
 - .05
 - .09 Mixed and miscellaneous.
 - .2 Horses.
 - .01 Breeding.
 - .02 Conformation and type.
 - .03 Feeding.
 - .04 Judging.
 - .05 Lameness and unsoundness.
 - .06 Market.
 - .07
 - .08
 - .09 Mixed and miscellaneous.
 - .3 Sheep.
 - .01 Feeding.
 - .02 Breeding.
 - .03
 - .04
 - .09 Mixed and miscellaneous.
 - .4 Swine.
 - .01 Feeding.
 - .02 Breeding.
 - .03
 - .04
 - .09 Mixed and miscellaneous.
 - .5 Poultry.
 - .01 Feeding.
 - .02 Breeding.
 - .03 Appliances.
 - .04
 - .09 Mixed and miscellaneous.
 - .6 Judging.
 - .9 Mixed and miscellaneous.

5. Food—

- .1 Stock foods (preparatory).
- .2 Standard foods.
- .3 Food for man and its inspection.
- .4
- .5
- .9 Mixed and miscellaneous.

6. Laboratory Subjects—

- .1 Bacteriology.
 - .01 Bacteria.
 - .02
 - .03
 - .09 Mixed and miscellaneous.
- .2 Chemistry.
- .3 Histology.
- .4 Pathology.
- .5 Physiology.
 - .01 Blood.
 - .02 Digestion.
 - .03 Reproduction.
 - .04 Respiration.
 - .05 Secretion and excretion.
 - .06 Metabolism.
 - .07
 - .08
 - .09 Mixed and miscellaneous.
- .6 Apparatus.
 - .01 Microscope.
 - .02
 - .03
 - .09 Mixed and miscellaneous.
- .7 Specimens, and preserving methods.
- .8
- .9 Mixed and miscellaneous.

7. Sanitation—

.1 Milk.

- .01 Care and handling.
- .02 Inspection.
- .03 Machines.
- .04 Bacterial changes in.
- .05 Preserving.
- .06
- .07
- .08
- .09 Mixed and miscellaneous.

.2 Stabling.

- .01 Ventilation.
- .02 Lighting.
- .03
- .09 Mixed and miscellaneous.

.3 Public health.

- .01 Hygiene.
- .02
- .09 Mixed and miscellaneous.

.4 Legislation and control work.

- .01 Human.
- .02 Veterinary.
 - .001 Reports.
 - .002 Laws and regulations.
 - .009 Mixed and miscellaneous.
- .09 Mixed and miscellaneous.

.5 Disinfection.

.6 Meat inspection.

.7

.8

.9 Mixed and miscellaneous.

8. Surgery—

.1 Obstetrics.

.2 Dentistry.

- .3 Castration.
 - .4 Dehorning.
 - .5
 - .6
 - .9 Mixed and miscellaneous.
9. Mixed and Miscellaneous Subjects.

Everything is filed in a vertical position closely packed with the numbers serially arranged like the leaves of a book. We have found the most satisfactory way for marking the serial number is to use a very soft pencil with heavy lead; for instance, Dixon's Sketching Crayon; and to place the number with this at the centre, near the top of the bulletin or reprint.

The key should be written or preferably typewritten with a record ribbon on a heavy durable paper, closely spaced so as to put the key into as small a bulk as possible, and this should then hang near a drawer or filing case in which the bulletins are kept. Our key is kept on a short roller, commonly used for window shades.

To illustrate the use of this key we will suppose that it is desired to file away a copy of the "Monthly List of Publications," issued by the Division of Publications of the United States Department of Agriculture. This, by a glance at the table, will be easily located as 0.2.

Bulletin No. 77, "Bovine Tuberculosis," recently issued by Dr. Van Es, upon a moment's glance through the contents is seen to belong to 1.41.

Bulletin No. 99, Bureau of Animal Industry, "The Danger from Tubercle Bacilli in the Environment of Tuberculous Cattle," is filed in a moment as 1.43.

Owing to the continued uncertainty concerning hog cholera, swine plague, and possibly another disease not yet named, we classify all of these as 1.3.

Bulletins on the sanitary production of milk like those recently issued by the Connecticut and Illinois stations, are located in a moment as 7.1.

All bulletins on the dissemination of tuberculosis, for instance, will be filed 1.43 and will necessarily stand side by side.

In looking for a given bulletin it is only necessary to remember something concerning its general subject matter, then refer to the key. The commonly used topics are very soon learned and may be located without looking at the key. It is an easy matter to decide on the classification number which should have been given to such a bulletin, and then one takes the proper drawer, according to number, and turns to the bulletin just as one would turn to a given page in a book.

This system is elastic and will not become overcrowded. It will be observed that there yet remains a considerable number of blanks which any user may fill in to suit his own matter.

I have found the item, "Mixed and miscellaneous," in any classification work to be very convenient, although free use of this subdivision is opposed by library experts. As soon as one accumulates a considerable number of bulletins or reprints on a given subject which has been classified as "miscellaneous," it is then an easy matter to put these together into a new subgroup of equal grade.

We use a Globe-Wernicke vertical filing case, the drawers of which measure in the clear about 12 inches wide and about 22 inches long with adjustable support. This nicely accommodates two rows of bulletins side by side, the bulletins being in a vertical position. The classification number thus comes into easy view.

As will be seen by referring to this key the writer has been accumulating only bulletins which have some close relation to veterinary work, and is inclined to recommend this system to experiment station veterinarians who receive a very large number of bulletins on all sorts of subjects.

Bulletins on miscellaneous subjects not closely related to veterinary work are or should be on file and indexed in the station or agricultural college library, and it requires much less labor to go to the general library for these than to keep and file all station bulletins and reprints which one receives.

The same general system of classification in filing would do equally well for bulletins or pamphlets on any line of subjects, or, in fact, for a general collection of bulletins on all possible subjects. All that is necessary in the way of a container is a Globe-Wernicke or Macey or any filing case of suitable dimensions, or a drawer or even an empty box of suitable width and depth.

The most elaborate filing case after all only serves the purpose of a simple box, the bulletins being closely packed standing on end.

If one has good office or library help an accompanying card index is very useful but is not at all necessary. We have all of our bulletin cards indexed and filed by this system, but I would not urge the card indexing except to one who has a rather large collection.

We have a similar but smaller and simpler key for filing negatives, lantern slides and photo prints by which the latter are easily filed away and as easily found when needed. This will be gladly given to anyone who needs, but is without, a satisfactory system of filing this material. If there are any considerable number of requests for this it may be sent in for publication in the REVIEW.

OHIO STATE COLLEGE RECEIVES RECOGNITION.—The Ohio Legislature which recently adjourned appropriated \$91,500 to the College of Veterinary Medicine of the Ohio State University. This money will be devoted to the erection of a clinical building, which will be placed on the University Campus near the Veterinary Laboratory building, completed four years ago, and the magnificent new buildings (three in number) of the Department of Animal Husbandry.

The entire appropriation will be immediately available and should be sufficient to provide the best building of its kind in the country. Every effort will be made to have it compare favorably with similar structures in the best European schools. The plans are now receiving very careful consideration and further description will appear later in the columns of this journal.

COUNTRY SLAUGHTER HOUSE CONDITIONS IN IOWA.*

BY DR. T. A. SHIPLEY, CEDAR RAPIDS, IOWA.

For the greater part of the time during the last three months, under instructions from the Chief of the Bureau of Animal Industry, I have been engaged in investigating sanitary conditions of establishments in Eastern Iowa doing an interstate business in uninspected meat and meat food products, under authority of exemption certificates issued by the Chief of the Bureau in accordance with the Federal law governing this business. The parties operating under these certificates are, for the most part, local retail butchers killing their own animals in their own slaughter houses, or in the open, and preparing their meat and meat food products in their own places of business without any inspection whatever. The Federal laws do not provide for any inspection of this product, neither does our State law provide for such inspection; however, the regulations governing the meat inspection of the United States Department of Agriculture prohibit the entrance into interstate commerce of *any* meat of meat food products which have been prepared under unsanitary conditions. The interstate business of these establishments is limited, and is confined almost wholly to the shipment of veal calf carcasses, one county in Iowa alone furnishing an estimated number of over six thousand annually. This is, however, exceptional and nowhere else in Iowa does this business reach anywhere near this number. There are some shipments made of uninspected cured and prepared meats made, but they are so few and small that they need not be considered. The balance of the product of these and all other local butchers is consumed by the citizens of Iowa, served up on your table and mine unless we are very particular to see that the meat we buy is cut from carcasses or parts bearing the marks "U. S. Inspected and Passed." There are no statistics available for estimating the amount of this product or

*A paper read before the Iowa State Veterinary Medical Association.

any way of estimating even the number of local butchers in this State, let alone the product handled by what is usually known as "scalpers" and the amount killed by the farmer for themselves or for sale in their local markets. They do not know themselves, for in interviewing over a hundred and fifty different establishments of this character, not one of them had an accurate book account or memorandum of the number of the animals slaughtered during the last year, but an estimate based on their best judgment of over one hundred of these establishments which were operating slaughter houses and markets in the State of Iowa it developed that the average was four and a small fraction of cattle and the same number of hogs per week. After carefully considering the matter, I think it likely that there would be an average of more than one slaughter house and market for every post-office in Iowa. There are in Iowa over 1,500 post-offices. Figuring the average of each market at the above estimate per week for two hundred even each of cattle and hogs, would make something like 300,000 of each cattle and hogs consumed by the citizens of Iowa without any inspection, and calculating the average condemnation for tuberculosis alone that hold in the Federal inspection in this State at three-quarters of one per cent., about the average in Cedar Rapids, it would figure out that the citizens of Iowa are eating every year about 2,250 tuberculosis cattle carcasses and 2,250 tuberculosis hog carcasses. Besides that number we have furnished probably a vastly larger number to the packers who have Federal inspection and what the farmers have eaten of their own killing, and the visibly diseased parts have been fed to the hog in raw state.

Is it any wonder that our State Veterinary Surgeon and the State Board of Agriculture is taking up an investigation of the amount of tuberculosis among the animals in Iowa?

But let us get back to the conditions under which these animals are slaughtered to the slaughter house itself. There are, in fact, many different conditions in and around these establishments and yet after viewing a hundred or so of them the vast majority of them look so much alike that to give you a descrip-

tion of one or two of the worst and one or two of the best, you could strike a general average that will represent conditions as they are and as they should be.

On the bank of a little stream that winds its course through some of the richest farms in Iowa to finally find its way into the Mississippi stands an old rough board shack that is in danger of toppling over on account of the hogs having undermined its supports. It stands in the midst of the feed lot in which there is fed some fifty head of cattle and the same number of hogs. It is innocent of paint or whitewash, either inside or out. The lot is littered with much offal, including the skeletons of two or three horses and the same number of cows whose softer parts have been devoured more or less completely by the hogs, crows and rats. At least, they were all in evidence at the time of my visit. It is fair to say there were no flies on the premises at the time of inspection, in December. Looking under this shack—it does not deserve the name of “slaughter house”—disclosed a leaky floor from which bloody icicles projected and a quantity of frozen blood and water under it. Let us go inside this structure. The ventilation is ample, being provided with numerous cracks of varying widths between the rough weather boards. In one corner is a pile of hides curing. In the other corner is the bricked-up kettle for heating water for scalding hogs, around which is a dirty, rough board bench on which the hair is removed, much of which was in evidence on the floor. The water for use in this institution, and for the stock around it, is obtained from the above-mentioned stream whose banks show evidence of his hogship having enjoyed many pleasant hours during the previous summer in its moisture, and I am sure the litter on the banks did not add to its purity, although it was being used for the washing of the carcasses and equipment when they were washed.

One dirty bucket and one dirty broom, nearly worn out, were all the visible equipment for use in cleaning the place. The proprietor assured me they gave it a thorough cleaning every time they scalded hogs, because they had plenty of hot water left over

after they had used it in scalding the hogs. Indeed, the middle of the floor did show some evidence of having been so treated, but the area beyond the middle and the walls, hooks and shelves for holding the livers, heads and other parts, it was surely innocent of any such treatment. The proprietor assured me that these carcasses did not hang in this structure to cool, but were hauled to their market immediately after slaughter and inquiry developed the fact that they had a vehicle which they used to transport the live animals from where they were bought to the place of slaughter, there killed and quartered, the litter brushed out of the vehicle and some dirty burlap stretched along the sides, the quarters hung on movable hooks and the carcass thus immediately transported to their market. Their market conditions are somewhat better, but on looking into the cooler some tainted meats and meat scraps are found, and the back room where the sausage is made and the lard rendered has a general filthy appearance of floors, walls and equipment. One of the proprietors had learned his trade in one of the large packing houses years ago, and assured me that their conditions were better than they were there at that time, and I was not in a position to dispute him. He had not, however, heard of the changes wrought along sanitary lines since the publication of the famous "jungle book."

On the banks of the Mississippi, within the limits of one of the oldest towns in Iowa, stands an old stone building, that I am told by the son served his father fifty years ago as a slaughter house and is still serving the sons as a place to kill their animals that supply the meat to the citizens of this town. One might well imagine from the litter and offal and the general appearance of the place, that no attempt, by human agency, had been made in all these years to clean up these premises. It is true that the high water of this mighty stream does sometimes remove a part of what the hogs and the crows and the rats have left undevoured. The water for use in this time-honored institution is dipped up from the banks of this stream at the lower edge of the premises. Inside the building like conditions are in evidence, as in the last

establishment mentioned. The floor is of boards, what there is left of it, and a coating of filth, in many places thicker than the original boards, covers the remaining part of the floor. The smells that issue from this place during the warm season must be more penetrating than agreeable. There is also a lack of clean tight floors in their rooms where the sausage is made and lard rendered, and the market conditions are not very clean or desirable. While the two mentioned establishments are, from a sanitary point of view, among the worst I have seen in Eastern Iowa, they are run by citizens that are of good repute in their communities. Indeed, as a class the butchers are in the main as desirable a lot of fellows as you will meet in any line of business. They are, perhaps, victims of circumstances, competition is close, and they have to do as their neighbors do or get out of business. Moreover, they are perhaps along the same lines the victims of their dairyman and baker with whom they do business, to a greater or less extent, and even of the farmer who knowingly, or unknowingly, sells them diseased animals. It will cost a little more all around to have clean meat, milk and bread, and there is the rub.

In contrast to the above conditions I want to call your attention to an establishment about two miles from a city of some ten or fifteen thousand inhabitants. This establishment slaughters on an average of twenty cattle and fifty hogs per week. Part of these animals are slaughtered on a commission basis for the retail butchers of the city at so much per head, the balance are killed and sold direct to the retail markets of this and neighboring towns. This establishment has an abundant supply of good clean water, hot and cold, good dry chill rooms, good meat curing cellar, and a tank room for offal away from the rest of the rooms, and edible products are all handled in a decently clean and sanitary manner, and, barring a few technical discrepancies, this establishment would meet the requirements of the Federal meat inspection regulations as regards sanitation.

There is also in Iowa a co-operative community of some eighteen hundred inhabitants in the seven villages comprising the

colony, and each village has its own slaughtering, meat curing and market establishment situated right in the village and in some instances right up against the dwellings, and not in the usual remote, out-of-the-way places that country slaughter houses are usually found. These seven establishments, equipment and premises are the cleanest of the kind that I know of anywhere. There is provision made for an abundance of hot and cold water, no offal is fed to the hogs on the premises, but, on the contrary, what cannot be rendered in soap grease is hauled off and buried. The butcher in charge of each of these places is of and for the community, and is answerable to the community for its governing body for the conditions of his place, and right well he discharges his duty. Between these two extremes of examples given are all grades ranging up and down. Some butchers have no slaughter houses, but kill in the open, which is preferable; from a sanitary point of view, to the dirty slaughter house, and I have even seen slaughtering operations being carried on in cow stables, pig pens and chicken houses. It would seem that we are in need of devising some way of regulating this business. The Federal law does not apply to an establishment unless some part of its product is offered for transportation in interstate or foreign commerce.

In view of the fact that several municipalities in this State have lately passed ordinances for the control of municipal meat and milk inspection and have appointed graduate veterinarians to fill these responsible positions, and that more municipalities are likely to do the same in the near future, it behooves us, as veterinarians, to study his problems so as to be able to take hold of the situation in a practical way for this work will finally devolve upon the veterinarian.

The first and most important problem in municipal meat inspection will be a sanitary slaughter house. If the different butchers and meat dealers of the larger cities cannot be persuaded to unite and build a common slaughter house for the use of all and hire a janitor to do the killing and keep it clean, the municipality will probably have to build it and charge each indi-

vidual so much per head for his accommodation. In the smaller towns, a suitable sanitary building can be constructed at a very little additional cost above what the present insanitary board structures do cost.

Let us inquire briefly regarding some of the features of the decent slaughter houses. First, as to its location: It need not be far from the business portion of the town if properly conducted. It should be on a site easily drained and connected with a sanitary sewer, if possible; if not, some satisfactory arrangements should be made for drainage. Second, there should be an ample supply of good wholesome water and provisions made for heating as much of it as is necessary to do the washing and cleaning of the structure. Third, regarding its construction I want to quote from an address of Dr. W. A. Evans, City Health Commissioner of Chicago, on "the public health and modern methods of buildings," in which he says: "I believe that the general use of concrete has done much to preserve human health and will do more in the future as its use increases. Concrete is one of the most important sanitary agents yet devised."

I believe it to be the most suitable agent to use in the construction of the ordinary small slaughter house, and suitable everywhere except for floors, over which there is to be much heavy trucking done. It is easier cleaned than ordinary boards, it is cooler in the summer and easier to keep warm in the winter. Concrete floors do not leak and are rat proof, and it is as cheap as good lumber. Fourth, regarding size and cost and number of rooms and equipment, that will depend upon the amount of business to be done. If tanking of offal is to be done on the premises a separate room should be provided for this and for the hides and other inedible products. Nothing but edible products should be stored in any room used for such products, and ventilation should be provided for all rooms and compartments.

Fifth, somebody to keep this kind of a structure and premises clean answerable to somebody else who will see that he does his work thoroughly.

When these few little details have been provided for, the butcher and the inspector will be in a position to render satisfactory service and the consuming public will be benefited. It will probably add to the present cost of such product and the consumer must expect to pay his share of such added cost, which would not be much in comparison with the benefits derived. It is already paid for by appropriation of the people's money on such products as bear the marks of Federal inspection, and if it is necessary or important that our meat and meat food products should be inspected and passed before they are eligible to transportation in interstate or foreign commerce, it is surely necessary and important that they be so inspected and passed before they should be eligible for consumption by ourselves.

THERE were more than 14,000,000 horses in this country in 1897, but according to the figures for the past year there are 19,746,000 horses in the United States at the present time. This is a gain of nearly 40 per cent. in a decade.

THE TACTFUL VETERINARIAN.—A New Jersey veterinarian who does a large canine practice got himself into a serious predicament by his inability to remember names and people. One day while making out a receipt for a lady her name escaped him. Not wishing to appear so forgetful, and thinking to get a clue, he asked her whether she spelled her name with an e or i. The lady smilingly replied: "Why, doctor, my name is Hill."

MARTYRS OF SCIENCE.—Once more science has claimed its sacrifices. Two men lie dead at its altars, four are dying and another, the first stricken, and the accidental agent of death, has but just recovered after frightful suffering. The immolation has taken place at the University of Czernowitz, in Austria. Professor Luksch, while seeking an anti-toxin for the disease of glanders, broke a culture tube containing the glanders bacilli, cutting his arm severely. After a period of incubation signs of the disease began to appear, but Professor Luksch, by a series of operations, managed to save his life. Then came the real tragedy. It was discovered that the entire staff which had been working with him was similarly attached. Two of its members have died and four are not expected to recover.—(*Cleveland Leader.*)

JOHNE'S DISEASE IN CATTLE.

By W. L. BEEBE, D. V. M., *Bacteriologist for Minnesota State Live Stock Sanitary Board.*

Paper read at the semi-annual meeting of the Minnesota State Veterinary Medical Association, 1908.

Johne and Fotheringham¹ in the year 1895 described a very peculiar case of enteritis in the cow. They were able to find many acid fast bacilli, which somewhat resembled the avian tubercle bacillus. It was not until 1904 when Markus² pointed out that this disease was of quite common occurrence in Holland that attention was again brought to this first case of Johne. Since then Lienaux and Van den Eeckhout³ have recognized it in Belgium, Borgeand⁴ in Switzerland, Bang⁵ in Denmark, and by M'Fadyean⁶ in England.

Pearson⁷ recently published a report upon this disease in Pennsylvania and Hovne⁸ has demonstrated its existence in Norway.

The purpose of this paper is to call attention to the fact that this disease exists in the northwest and particularly in Minnesota. Up to the present time, the writer has obtained material from two cases, and has held a careful post mortem examination upon another case. These three cases represent two outbreaks, one in Minnesota and the other in Wisconsin, the distance between the two farms being about 200 miles.

In May, 1907, material was obtained from the first case, but no publication was made of this at the time, as the specimen was sent in formalin, thus making it impossible to test the pathogenesis of the acid fast bacilli.

The owner described the Wisconsin outbreak as follows:

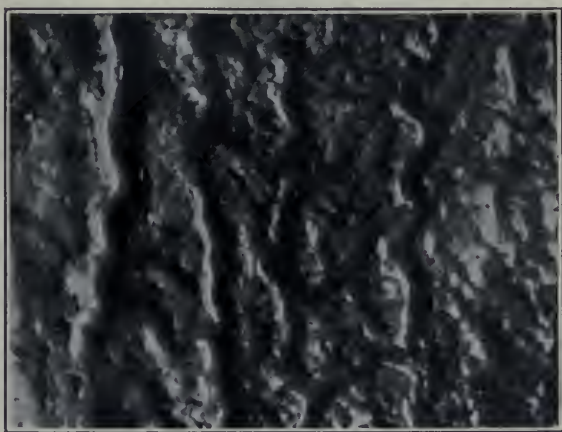
"The original cattle were brought from Albert Lea, Minn., about seven years ago. We have lost about eight from this disease since that time. Four of them were of the original imported cattle, three bred at this farm and one at Lake Geneva.

The mother of one of the home-bred cows that died of the disease also died with it here; the mothers of the other two young cows are still living in good health. We had a number of cattle from Lake Geneva and the rest are all sound. This is the only one we have lost. I cannot say that any of the animals that died were in especially close contact with those that died previously. Usually the disease will attack a cow shortly after calving, at least, it is at such a time it first becomes noticeable. The animals lost their appetite, the milk flow drops, the coat becomes hard and rough, and they scour badly. They linger along from six months to a year, becoming poorer all the time and finally die. As far as we know our bulls have never been affected, and we have had as many as fifteen mature bulls on the farm at once. We have from sixty to eighty head of cattle on the farm."

In May, 1907, a piece of small intestine about four inches square was received in a fruit jar of formalin solution. This specimen was sent from Wisconsin to Prof. Haecker, of the Minnesota State Agricultural College, who referred the specimen to the writer. An accompanying communication stated that the animal from which this specimen was taken had been suffering from a diarrhoea for several months, and that as the owner had lost several cattle from apparently the same disease, he desired to have a bacteriological examination made. Smear preparations were made from the mucosa and upon examination many acid fast bacteria, which in every way resembled the bacillus of Johne's disease, were found.

Case 11. The animal began to scour November 21, 1907, shortly after calving. She was isolated and the feed changed. The change in feed seemed to be beneficial as the scouring ceased and her health seemed somewhat improved, but by weighing her from time to time it was found that she was gradually losing flesh. About April 15, 1908, she began to scour again, and on April 23 she was so weak that she was unable to rise, and remained down until killed by the writer on April 25.

Post mortem: The carcass was very much emaciated. Upon opening the pleural cavity the cephalic lobes of both lungs showed a very marked emphysema. All other organs in this cavity were normal. Upon opening the abdominal cavity the liver presented few small areas of fatty degeneration in the right lobe. The spleen and kidneys were apparently normal. The mucosa of abomasum presented a few congested areas and also a few ulcers. The first third of the small intestine contained quite a portion that was of a redish brown color. The next third was thickened and puckered. The remainder of the small intestine and the



Photograph of mucous membrane of small intestine showing wrinkled appearance.
(Natural size.)

cæcum were apparently normal. A short portion of the colon was also thickened and puckered. The remainder of the intestine was normal.

Smear preparations were made from the ulcers in the abomasum, redish brown and rough portion of small intestine, and mesenteric lymph gland draining the rough portion of the small intestine and stained for acid fast bacilli. Many were found present in the smears from rough portion of the small intestine and also from the lymph glands.

Virulence: On April 29 two guinea pigs and a rabbit were inoculated subcutaneously with $1\frac{1}{2}$ c. c. each of bouillon suspension of mucosa from the roughened portion of the small intestine. May 9 one of the guinea pigs died. A careful examination post mortem did not reveal any lesions. The other guinea pig and the rabbit were killed July 7 by chloroforming, but no lesions were found.

Inoculations were made from the lymph glands that contained acid fast bacilli on Dorset's egg medium and incubated at 37 degrees C., but no growth took place.

Outbreak 2. This outbreak occurred in Chicago County, Minnesota. The owner gave the following history:

"These cattle were bought at Caledonia, Houston County, Minn., in December, 1898. The following year, in May, one of the cows had a bull calf, and in about two months this cow took sick. She died the following fall. The bull calf was raised and three cows were bred to him. This bull became ill and was killed after he had been sick for about nine months. Five calves from cows which had been served by the bull died from the same trouble. Four of these cattle were pure bred and three were grade Short-horns."

From the last animal to die several pieces of intestine and a piece of the abomasum were sent to the writer for bacteriological examination. Smear preparations were prepared from each portion and stained for acid fast bacilli. Upon microscopical examination many acid fast bacilli were found in the smears from the small intestine.

May 27, 1907, two guinea pigs and a rabbit were inoculated subcutaneously each with a piece of mucosa about the size of a pea. February 8 all were killed by chloroforming and examined post mortem.

The only abnormality found present in the guinea pigs was very marked emaciation. The rabbit was very fat and free from disease.

Etiology: There is very little room for doubt that this bacillus so abundantly found and so uniformly present is the

cause of the disease. Morphologically this organism closely resembles the tubercle bacillus. It is shorter and perhaps slightly thicker than the tubercle bacillus, usually measuring about $2m$ in length, but occasionally it reaches $4m$. There are also many that do not exceed $1m$ in length. The longer bacilli sometimes stain unevenly, giving a beaded appearance, while the shorter organisms take an even stain.

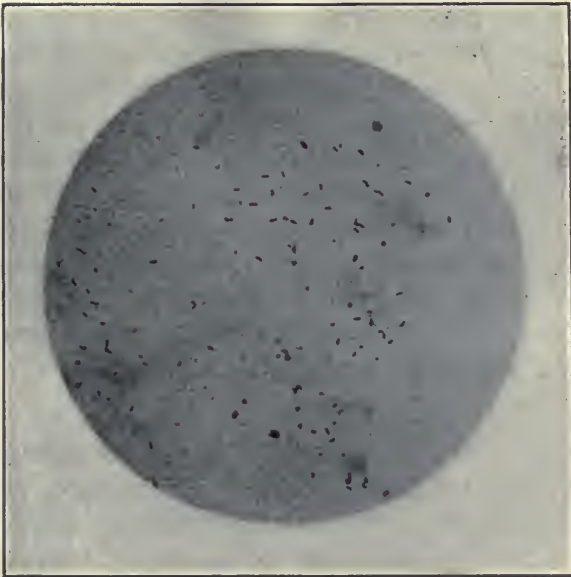


Photo-micrograph of scraping from mucous membrane of small intestine showing bacilli of Johne's disease. Preparation stained in carbolfuchsin decolorized in 25% sulphuric acid and counter-stained in Löffler's methylene blue. (X675.)

Several experimenters, including the writer, have been unable to infect rabbits and guinea pigs with it. Another characteristic which distinguishes it from the tubercle bacillus is the very trivial tissue changes produced in comparison to the abundant number present. So far all attempts to cultivate this organism on artificial media have proved futile. It is possible that in the future this can be accomplished, but at present it is certain that its cultural requirements are different from the tubercle bacillus.

Symptoms: The first symptoms of this disease are loss of flesh, an unthrifty appearance and inelastic skin, while the appetite remains good. The temperatures usually remain normal. Diarrhoea may soon set in, or, as is frequently the case, it may not make its appearance until after calving. The diarrhoea usually is persistent, although it is occasionally checked by changing the feed or by astringent treatment. The beneficial result of changing of feed is well illustrated in Case 11. The feed was changed in the middle of November and the diarrhoea did not again appear until April 15, although the animal continued to lose flesh. There may be cases that recover from a mild form of this disease, but always when the symptoms are well marked the disease proves fatal, its duration being from two to fifteen months. The appetite usually remains fairly good for a short time, but it soon becomes impaired. For several days before death the animals usually remain in a semi-comatose condition. The symptoms of Johne's disease very closely resemble those produced by gastric parasites and a careful post mortem examination should always be made in order to make a differential diagnosis.

Lesions: Enteritis primarily of the small intestine and as a rule involving the large intestine is the principal pathological change. Usually the first third of the small intestine is free from disease and the last two-thirds are the seat of the most marked lesions. The mucous membrane is in many cases the only part affected, but the organisms may invade also the submucosa, thus resulting in a thickening of the bowel. When there is a thickening of the intestine the mucous membrane is wrinkled. If the intestine is cut open, these wrinkles do not disappear when traction is applied as is the case with a normal intestine. If a thickened intestine is held up to the light it is noticed that the thickening is very pronounced in places, resembling warty growths. Congestion of the bowel is rare. Ulcers are very seldom encountered. In Case 11 several ulcers were noticed in the abomasum, but no Johne's bacilli could be found present.

The lymphatic glands are usually somewhat enlarged. In some cases this is quite pronounced and then they usually contain an abnormally large amount of watery liquid, which oozes out when cut. When carefully examined no congestion or altered appearance can be detected, but if scrapings are made from them and stained they will be found to contain a very large number of bacilli of Johne's disease.

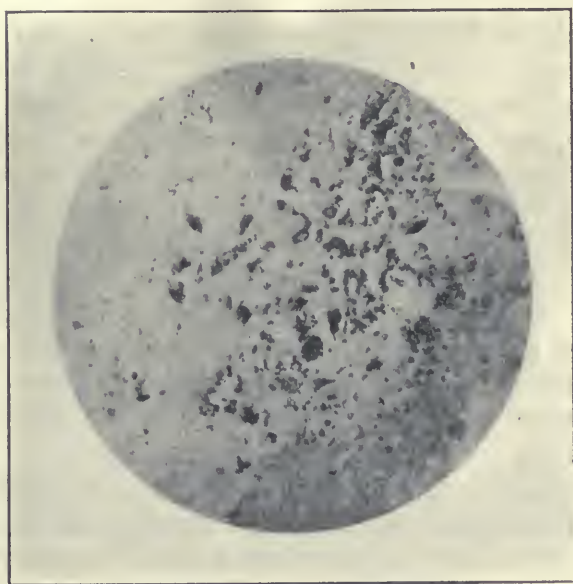


Photo-micrograph of section through mucosa of small intestine. The dark-stained areas are masses of bacilli, stained with carbol-fuchsin decolorized with 25% sulphuric acid and counter-stained with Unna's methylene blue. (X170.)

A very characteristic feature of the disease is the slight tissue changes produced in comparison to the number of organisms present. Even when these organisms are present in immense numbers there is no necrosis or caseation as would be found in tuberculosis.

Both in the thickened portion of the intestine and in the mesenteric lymph glands, the lesions are very similar to tuberculosis before necrosis and caseation set in. Thus epitheloid

cells and a few typical giant cells are usually found present. In Case (II) many eisinophiles were present in the intestinal mucosa. It is a very interesting fact that the pathological changes are not sharply defined, the tissue seeming to have no power to resist their multiplications and dissemination. Bacilli are very frequently arranged in clumps. Many times these clumps are so large that small red areas can be seen in the preparation with a low magnification.

Prevention: This is a disease that must be regarded as infectious and also of grave importance. It being of a chronic nature and as far as we know always fatal, makes it a very serious matter if it once becomes established in a herd. In the writer's experience cattle begin to lose condition for several weeks or even months before the diarrhoea sets in, and probably during this period the specific organisms are present in the feces, thus exposing the other cattle to infection. When it is known that this disease exists in a herd all animals affected and also those that are even suspected of being affected with it should be isolated. The feces from these animals ought to be deeply buried or burned. It would also seem best to destroy all animals where a positive diagnosis has been made.

As this organism cannot be cultivated on artificial media, it seems quite probable that it will not grow in soil, feces, etc.

As to the vitality of the bacillus, bacteriologists are unable to say just how resistant it is to disinfectants, but owing to the fact that it probably does not produce spores, ordinary germicides will undoubtedly kill the organism.

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REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

SOME INTERESTING CASES.*

BY DR. W. H. WELCH, LEXINGTON, ILL.

The following cases are reported, not on account of any great educational value they may exhibit, but being out of the ordinary, were interesting to me.

February 27 last, I was called to attend a gelding that was observed to stand apart from the rest of the herd. Being forced to move he drags and carries the left front leg. An emphysematous swelling extends from throat-latch over shoulder down to knee. No external wound is visible, but there is a depression along trachea, between two rings of cartilage. Pressing on the superior ring air is observed to leave trachea and diffuse into surrounding cellular tissue. The injury is supposed to have resulted from animal running into post and rupturing the muscular tissue between cartilages. It is the writer's first experience with subcutaneous emphysema occurring through other than a direct external opening.

My second case of subcutaneous emphysema occurred April 23. Subject, a large cow, eight years old, prostrate with parturient paresis. She had calved the previous evening, was observed to be unsteady and staggered at 4 a. m. and was down at 9 a. m.

Arriving about 1 p. m., she was at once given a dose of sulphate strychnia, hypodermically, followed by the sterilized air treatment, and left small doses of nux vomica to be given every two hours until on her feet. Instructions were given to strip all the gas out of udder as soon as she arose, and if not lying up on her chest, or making efforts to rise by 8 o'clock, to call up on 'phone.

About 8 o'clock I was informed that the cow was up and seemed all right, but, says the German: "I can not get all the gas from under the skin out." Thinking, of course, that he referred to his inability to get all the gas out of the udder, I

* Report read before the Illinois State Veterinary Medical Association.

told him that it was immaterial, would do no harm, except that the milk secretion would not be so active until it was all out, and that what he didn't get out this time would come out at subsequent milkings.

Two days later I was once more summoned to attend her, as she had suffered a relapse, and was again prostrate. Upon arriving, imagine my surprise at finding the cellular tissue beneath skin over entire right hind quarter thoroughly permeated with air, and as tympanatic as a bass drum. This was what the German had referred to, as being unable to milk out. A careful examination was now made to see if there were not some external opening through which air might have gained entrance, but none is visible. The sterilized air treatment is once more applied, and as right front teat is inflated, the air is plainly seen to exude along subcutaneous abdominal vein, rounding upward along anterior border of udder, and diffuse beneath skin over entire right hind leg. By evening she was up again, and made an uneventful recovery. May 15 the farmer was in to settle his bill and stated that some of the gas was still there, but that the udder was, and had been all the time, in perfect condition.

Query—How did gas escape from udder?

I wish now to call attention to three cases presenting an anomalous condition of the testicles, of which I have found no mention in the ordinary text books at my command.

To begin with a little gross anatomy may not be out of order. Quoting from Strangeway: "The testicle is a glandular structure, divided into distinct lobules, which consist of minute convoluted tubes (tubuli seminiferi). These uniting to form larger tubes (vasa recta) enter the mediastinum, and terminate in a close network of tubules (the rete testes), which, passing to the superior extremity of mediastinum are formed into the vasa efferentia."

"The vasa efferentia consists of a number of small ducts. Straight at first, they shortly become convoluted, forming a series of conical masses (the coni vasculosi), from whose bases larger tubules issue, the whole forming the head or globus major of the epididymus."

"The epididymus is an elongated body, extending along the upper border of testicle, and consists of a head, or globus major, and a tail or globus minor."

Now, "*The head is situated anteriorly and is closely adherent to the testicle through the vasa efferentia.*"

Is this always true?

Three years ago I came across the first deviation from this rule that I had encountered, and it came near resulting in my amputating the epididymus and leaving the testicle in the abdominal cavity.

Subject was a two-year-old cryptorchid, from which one testicle had been previously removed. He was cast in the ordinary way, and entrance made through inguinal ring, where spermatic cord is easily recognized and brought to view. An elongated body is recognized as testicle structure, and being unable to find testicle, am suspicious that previous operator may have removed testicle proper, leaving epididymus. Being unable to find scar, however, continuous traction is resorted to and testicle is finally brought to surface. In this case both testicle and epididymus were in abdominal cavity, and the point which I wish to emphasize is the great distance between the two. Joined by what I suppose must be a prolongation of the vasa efferentia, the distance from epididymus and testicle proper is 18 inches.

The next case occurring under my observation was May 8 of the present year. Subject, a yearling draft colt, secured by twitch for the standing operation. Two supposed testicles are firmly grasped, and incisions are made on to each. Digital exploration on right side reveals epididymus, but hard traction fails to bring down testicle. Colt is now cast, and being still unable to bring testicle to surface a rectal examination is resorted to, when a large cystic testicle is recognized in abdominal cavity. Trocar is now used and contents of cyst allowed to escape through camela, after which removal is easily accomplished.

In this case epididymus is in scrotum, and cystic testicle is in abdominal cavity. Distance between epididymus and testicle, 14 inches.

My last case of this kind occurred May 23. Was called to examine a three-year-old horse of amorous disposition, which owner had purchased from his neighbor the past spring. Present owner had complained to seller that horse was a ridgling, but abundant proof was submitted by other neighbors who had witnessed the operation, that two testicles had been removed. An examination of scrotum reveals ends of cords on each side, while a rectal examination reveals a testicle in abdominal cavity on right side.

Horse is now cast and incision is made on right side. End of cord is grasped and followed to inguinal ring, when severe traction brings to view the hidden testicle. Another case of

epididymus in scrotum and testicle in abdominal cavity. The operator of the previous year had only removed the epididymus. Estimated distance from epididymus to testicle, 12 to 15 inches.

Here are three anomalous cases in one of which the epididymus and testicle are both in abdominal cavity, the extreme length of what I suppose we must term the vasa efferentia being 18 inches. In the other two, epididymus is in scrotum and testicle in abdominal cavity, and length of vasa efferentia 12 to 15 inches.

Is this condition at all common? Might not this condition account for many of the so-called removal of three testicles, of which we so often hear? Imagine the testicle being held high in inguinal region and epididymus in scrotum. The epididymus is removed and by the following year the testicle proper is descended, and the claim is made of three testicles.

CASES MET WITH IN PRACTICE.

BY DR. JAMES HARRISON, MAPLE RAPIDS, MICH.

Report read before the Michigan State Veterinary Medical Association.

My object in describing some of these cases is not that I expect to impart to you any new ideas or anything new in the treatment of them; but is more or less from a selfish motive in that I may possibly learn something myself. The first few cases I shall describe were fatal cases of parturition. I describe these from the fact that since 1890, up till the last two years, I have been extraordinarily successful in handling cases of parturition in all animals. In fact, so much so, that I began to get quite conceited and to think that the cases of parturition that I could not handle successfully were like hen's teeth, few and far between. I am frank to confess, however, at this time that my bump of self-conceit has, in the last two years, received several severe jolts. And I question very much whether or not it can be found now.

Case No. 1—On May 24, 1906, I was called to see a brown mare 12 years old, laboring, but unable to expel the fœtus. On examination I found the head turned back on the shoulder and one front leg turned under. After a little careful manipulation and exercise of muscle I succeeded in delivering the mare of a good, healthy and strong livé foal. A part of the afterbirth was

retained but was removed in a short time with a little hemorrhage. Washed the uterus well out with warm water. Gave half an ounce of chloral and two ounces of whiskey in a pint of water and left for the night. Called the next morning and found the mare and foal in good condition. I might, however, state here that the mare had to be raised with a sling for a week before and also this morning. Washed out the uterus thoroughly with an antiseptic solution. Gave more whiskey, and as the appetite was good, she was given the best of oats and a bran mash and at night oats and dry bran with good clean hay. Visited her again on the 26th. The vulva, which had been considerably swollen, had not diminished, as I expected, but had rather increased and there was a discharge of a yellowish watery substance, denoting septic infection. Animal was stiff and weak; pulse, small and rapid; temperature, 104 degrees. Washed out the uterus with a solution of permanganate of potash and carbolic acid, gave four ounces of whiskey and two-dram doses of quinine sulph. every four hours. Called the next morning, 27th, found the mare dead, having died about 4 o'clock that morning.

Case No. 2—On May 25th was called to see mare, 16 years old, unable to foal. This was about a mile and a half from case No. 1, and was treated at the same time and in the same way. Did not have a great deal of trouble in extracting foetus, but it was a breach presentation and foal dead. Mare died about 3.30 a. m. on the 27th.

Case No. 3—A heifer, two years old, very fat, and of the Durham breed. On inserting the hand nothing could be felt but the tail and buttocks, hocks being in front of the pelvic bones, foetus alive. Thinking to get the foetus alive and save both I proceeded to get small ropes on legs below hocks and draw the feet and legs up over the pelvic bones, which I succeeded in doing after a while, but in extracting the calf, which was a very large one, the vagina was lacerated clear across, close to the uterus. I did not think this was done while turning the legs and bringing them up over the pelvic bones, but it is possible. Seeing that nothing could be done I ordered her destruction, which was done, and on post mortem the laceration found as described.

Case No. 4—On June 27, 1907, was called to see cow, which the owner explained had not been feeling right for a month or more, had not been sick but showed signs of being in pain; at times would strain as though about to calve although her time

was not up for two months yet. After straining for a while she would give up and go and feed and be apparently all right for two or three days, and then the attack would come on again.

On inserting my hand I discovered a small portion of placenta and on following it up I could gain no headway and could find no way of getting my hand into the uterus; I at once concluded that she had a complete torsion of the uterus. I then tried to figure out which way the uterus was twisted. I could feel no foetus and it was difficult to find just which way it was twisted. I finally made up my mind that I had the right way of it and had assistants roll her over her back and over her feet while I with inserted hand tried to hold the uterus stationary. We had the cow standing nearly on her head, on her back and every way we could think of, but to no avail, and I had not located the foetus yet. Well, we worked for about five hours, were all tired out and had accomplished nothing, and I recommended her destruction. The owner did not consent at that time and I left. The owner destroyed her the next day and on making post mortem found a complete twist in the neck of the uterus which was lacerated anteriorly and he found the foetus in front of the rumen or paunch, and he said from the appearance of it he would judge it had been dead for a month. Perhaps, however, it had been dead for a week.

Case No. 5—A bay mare, 8 years old, weighing 1,300 pounds, was brought to my barn, the owner having drawn a load of wood to town and was starting for home when the mare was taken with colic, which developed into acute indigestion.

I first gave her 8 drams aloes, $\frac{1}{2}$ dram calomel, $\frac{1}{2}$ ounce soda bicarb., $\frac{1}{2}$ ounce gentian in a quart of water followed by $\frac{1}{2}$ ounce chloral hydrate in a pint of water. Pains not abating in one hour I gave $2\frac{1}{2}$ grains morphia sulph., hypodermically, and in one hour, 1 grain physotrig, $\frac{1}{2}$ grain pilocarpine. Got no response from esserine and pilocarp; in an hour gave $\frac{1}{2}$ ounce chloral in pint of water. But I seemed to be unable to control the spasms of pain. Two hours after giving first dose of esserine and pilocarp I repeated the dose, when she quieted down a little. Breathing was quite heavy and pulse full and bounding; temperature, 102 degrees.

I then gave small doses of *candibis indica* every hour. About eight hours after being taken she became very stiff and unable to use the right hind leg and I suspected azoturia, drew her water with a catheter, which was of a dark coffee color, charac-

teristic of that disease. After which she appeared easier and did not require anything more to counteract the pain. In the course of time the physic acted and she made an uneventful recovery.

Question—Was the azoturia brought on by the animal's exertions during paroxysms of pain?

Case No. 6—December 13, 1907, same mare was brought to my barn under the same conditions, being over two years after first attack; the only exception being that she was 8½ months along with foal. I treated her in very much the same way as in first attack, but having just read Dr. W. H. Weathers' paper on arecoline compared with esserine, in Park-Davis & Co.'s veterinary notes, I wished I had some arecoline instead of esserine, but the wish did not materialize, and in the course of time the mare again made an uneventful recovery. The mare, however, on this occasion did not develop any signs of azoturia.

A DIAGNOSIS REQUESTED.

BY DR. C. B. KERN, BELOIT, KANSAS.

Reported to the Kansas State Veterinary Medical Association.

The manner in which the subject of my paper is stated on the program may have misled some of you to expect a description of a new disease, with etiology and pathology fully gone into. Such of you will undoubtedly be disappointed for the substance of my paper will deal merely with the report of two cases which presented extraordinary and unusual symptoms, the causes and nature of which have led to no little speculation on my part without satisfactorily solving the problem. It is with the hope of gaining the desired information that I draw your attention to the following two cases.

Case No. 1.—Subject, a gray mare, 15 years of age, in good condition, with colt two weeks old by her side, mare having been rebred the ninth day. She had been running on green wheat pasture with good water supply from deep well, receiving an occasional feed of corn when being driven, but had not been hitched for several days previous to the attack. At 7 a. m. on May 29 last, after eating a feed of corn, owner noticed pronounced salivation and on moving her noticed her to be somewhat stiff in her action. This symptom gradually became aggravated until noon, when I was called. On account of the

distance and previous engagements I was unable to reach the spot until 4 p. m., when I found her in a pitiful condition. The entire system of voluntary muscles seemed to be in a state of tonic spasm. On attempting to lead her she would almost fall down, it being next to impossible to move her. Respirations were much accelerated and difficult on account of spasm of the respiratory muscles. Pulse ranged from 60 to 90 according to whether she was excited or not. Excitement causing aggravation of all the symptoms. Temperature, 103; body bathed with perspiration. Upon attempting to drench the mare with a solution of chloral hydrate and water she fell to the ground where we finished the drench. She lay stretched out struggling violently at times and finally, with our assistance, regained her feet with difficulty. Also gave five grains morphine, hypodermically, followed by inhalations of chloroform. We decided that drenching was too exciting and dangerous to both animal and attendants, so prepared a mixture of equal parts of chloral hydrate and camphor gum, which was given intra-tracheally every one to three hours. This, with the subsequent injection of morphia and inhalations of chloroform, constituted the medicinal treatment. Efforts were made to keep the animal as quiet and comfortable as possible. Gradually toward midnight the spasm began to abate, but did not leave her entirely until morning, when she could move with comparative ease but was left much prostrated.

After-treatment consisted of stimulants and tonics under which she gradually regained her normal strength and appetite in a few days.

Case No. 2.—Roan mare in good condition, 9 years old, with colt six weeks old at her side, having been rebred the ninth day, and was again in foal as proved by the post mortem. This mare had been fed on alfalfa and corn and watered from deep well. She had been worked every day for a week. Owner drove her to neighboring town about 10 miles distant with load. On returning, when about two-thirds distance home, mare suddenly became excited and wanted to go. Owner stated that he was powerless to hold her. Suddenly the animal falls but rises again and still pushes ahead when she falls a second time. This time she has more difficulty in rising and upon doing so, is noticed by the owner for the first time to be stiff and could only move with difficulty. The owner at once telephoned for me, about 4 p. m., and by the time I reached his place, about

12 miles out, he had succeeded in getting her home. I found the mare presenting exactly the same symptoms as described in previous case. Having had good results with the line of treatment employed in case No. 1, I immediately proceeded to carry it out in case No. 2.

Having other cases pressing me for attention I left my assistant in charge of this case, after administering a dose of each chloral and morphine. The treatment outlined in first case was diligently carried out in this one, but with negative results, the animal gradually growing worse. She got down and in her struggles to regain her feet, which was impossible, she nearly demolished the barn and made it almost impossible to administer the treatment, and in a convulsive paroxysm she died shortly after midnight. Upon post mortem a ruptured diaphragm was disclosed. If any other lesions existed they were overlooked by the assistant in charge.

Projection of the membrana nictitans was absent in both of the cases. No history of previous injury existed, The absence of which and the comparatively short period during which case No. 1 recovered completely and the suddenness of attack in case No. 2 entirely preclude the possibility of tetanus having existed.

The non-intermittent character of the spasms in both cases would lead one to believe it could not have been strychnine poisoning, even in the absence of chemical analysis.

MANGE AND ITS TREATMENT.*

By DR. F. A. ILSTRUP, Willmar, Minn.

I am not going into the minute details of this subject, as I know you are all more or less familiar with the disease. As for myself, I have had quite a few cases of mange and an abundance of eczema the last three or four years, but best of all is the ap-

* Read before the Minnesota State Veterinary Medical Association.

praisal I have had for my treatment, "the great stuff," as the farmer calls it, which I will explain later.

Mange, itch or scab in the lower animals is a skin disease of local nature due to an insect which induces irritation, ulceration, suppuration and incrustation on the surface of the body generally. As I understand there are three principal classes of mange, but there are many sub-classes to these again.

First—In the horse—*Sarcoptic scabiei* are the worst, as they work under the skin or in the body of the true skin and also get to the root of the hair.

Second—In the ox—*Symbiotis bovis* is the most serious.

Third—In the sheep—*Psoroptic* mange, or, as known among the sheepmen, scabies.

Fourth—In the hog—*Sarcoptic squamiferous*.

Fifth—In the dog—*Sarcoptic* mange is the most important.

Mange is a contagious disease, never originating spontaneously and requiring for its development the passage of the parasites or the egg from the diseased to the healthy animals. All sarcoptics may live for an indefinite period upon man's skin, but the psoroptic and symbiotis die very rapidly.

The horse may contract sarcoptic mange from the sheep, pig, dog and cat. The ox takes the sarcoptic from the horse, sheep, cat and goat. The sheep contracts sarcoptic mange from the goat. The pig contracts sarcoptic mange from the goat. The dog takes the sarcoptics of mange from the pig, cat, sheep and goat.

From these summaries, we see that sarcoptic mange is especially transmissible from one species to the other. Contamination takes place either by direct contact or at hitching posts, barns and in pastures, and by intermediary agents as blankets, harnesses, grooming implements and also the grooms taking care of the diseased animals.

The symptoms of mange in the horse is first a vesicular eruption and intense itching, and, if examined by the hand, small, hard pimples may be felt which if looked at close will be found to consist of small scabs easily removed, exposing round, small, moist surfaces about an eighth of an inch in diameter, these surfaces allowing serous contents to escape which dries and forms a scab, and, at the more advanced period, large surfaces become destitute of hair. The first favorite seat is on the side of the

neck and withers, hence they will extend over the surface of the body. At the later period the skin becomes thickened, wrinkled and fissured.

The symptoms of the ox are similar to that of the horse and are generally observed on the neck and withers and root of the tail, and soon extends to the whole body, except the limbs, causing severe itching, falling off of the hair, thickening, hardening and corrugation of the skin. The animal rubs and licks itself, causing abrasion of the skin from which an exudate is poured out which dries and forms a crust.

The symptoms of the sheep at first is an intense itching, attempts being made to allay by rubbing which gives the animal a ragged appearance, tufts of wool being pulled out, leaving white patches. On these surfaces small pimples of a yellowish red color, will be observed and on the surface of these pimples a small blister or vesicle soon forms, its contents being discharged which forms a crust or scab. The wool is easily detached along with this crust, and the underlaying skin is thickened, wrinkled, inflamed and scabby. The parts first attacked are the back, sides and shoulders but rarely the lower part of the body.

The symptoms of the dog—At the beginning we detect spots, especially on the surface where the skin is bare, which are similar to flea bites and are located on the inner aspects of the legs and abdominal region. The friction and rubbing produces a diffused redness of the skin. Where these bites are located small pimples develop which, transformed into vesicles in considerable numbers, spread all over the surface of the body. In the majority of cases they are emptied out, producing a moist surface, and in others dry scabs are observed; frequently these vesicles pass into a pustilous state which dries rapidly and forms yellowish gray scabs, which are detached and the hair falls out, forming bare blotches. The skin itself becomes thickened, wrinkled and cracked. The animal is constantly scratching itself.

The symptoms in the pig are generally first noticed about the head, especially the fossa beneath the eye, the eyelids, cheeks and auricular region; thence it extends up the neck and shoulders, finally the whole surface of the body. The affected parts are covered with an abundant epidermis desquamation and also thick scabs, the color of which varies from a grayish white to silver white. The skin is thick, stiff, hard and wrinkled, all the bristle become loose and fall out.

As to the treatment of this disease, I have had charming results with common machine oil, or "engen," as the hardware men call it. The way I have done: I put it up in quart bottles; in addition to the oil, I put about 4 or 5 ounces of sulphur, with 2 or 3 drams carbo ligni, so as to disguise the color of the sulphur, and have it pulverized as fine as possible, and to change the smell of the oil use 3 or 4 drams of either oil picis, crude carbo-lic acid or something of that nature. After shaking up this mixture, I apply it freely the first time all over the affected parts, then rub it in well; after this is done leave the animal alone for four or five days or even longer. By this time you will find your patient covered with loose epidermic desquamation scab and loose hair which can easily be removed with a stiff brush.

In bad cases you may have to repeat the same process the second time. After this being done, you will find the skin nice and soft and new hair starting to grow. Then, if there are any places where it appears again just apply over these places until cured, but never use any water as it seems to make it worse.

How I happened to discover the use of the oil was: I traded for a horse that was affected with eczema along the sides of his neck and shoulders. He kept on rubbing until he had drawn blood. Being hot weather, the flies troubled him, so I thought I would apply a little of this oil to keep them off. To my surprise, he quit rubbing nearly right away, so I decided to try it on other cases.

First Case.—I had a pair of bay geldings weighing about 3,200 pounds which had been affected for more than two years with mange. My competitor treated them for about a year, using everything he could think of without any result. Then, after that I got the honor. I tried every imaginable thing for about six months with but very little result, from soaking, washing, scrubbing, applying liniments, ointments, kerosene and gasoline, even a quart of 20 per cent. of creosote, vasogen compound, and all the elbow grease the farmer had, with but little result. It was about the middle part of August, 1905, when I commenced with my new treatment, and within six weeks you would not have known that they were the same horses. The new hair that came out was much darker.

The same party kept these horses until the following spring without any sign of reappearing. Sometime in April they were sold and shipped to Canada, so I lost track of them.

Second Case was a two-year-old bronco which was affected a little when taken from the herd, some time about the 1st of September, 1906. Nothing was done to this fellow until the following spring, at which time he was poor and weak, and his skin was thick and wrinkled and looked more like that of a rhinoceros than that of a colt. The owner got a quart bottle of the oil, went home with the intention to either kill or cure, so he soaked him from the tip of his nose to his hoofs. He used a whole quart at once, then he turned him in the pasture. The colt went to the farthest end of the pasture and laid down and stayed there until the evening of the second day; then he came up to the barn with the other colts and in a few days he had hardly any hair left on his body. The new hair came out and he gained right away, never showing any signs since.

Third Case.—A party was fattening some steers and two or three of them began rubbing and licking themselves; they hardly had time to eat. Of course, I never saw the steers, so cannot say what kind of an itch they had, but whatever it was the oil put a stop to it nearly right away.

Fourth Case was a sow with her seven little pigs, which were all affected. They would be up by the trough eating and every little while they would run to the fence and rub themselves, then back to the trough again. That was the way they would keep on all the time and it nearly wore them out. The owner got a bottle of this oil and applied it only once, and that was the last of the disease on them. They peeled off just like on the horses. During the year 1906 I sold 32 quarts of the oil without a solitary kick, so you might know I could give a few more cases as the above, but this will show you what the oil will do. I am sorry I never had the chance to try it on the dog and sheep, but I am convinced it would work on the dog and sheep also, if it were clipped real close so we could get at the diseased parts.

THE celebrated picture, "The Village Blacksmith," by the French artist, H. D. Marean, is now valued at \$60,000.

THE trustees of the Pennsylvania Veterinary Medical Association have decided that the semi-annual meeting of this association shall be held on the morning of September 8, the first day of the American meeting. In this way they feel that they will have a larger gathering of local men than if they should wait until the usual time, which is a week later.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF MESENTERIC ABSCESS DIRECTLY FOLLOWING STRANGLES AND TERMINATING WITH RUPTURE OF THE STOMACH [*Capt. G. P. Knott, A. V. C.*].—Six-year-old mare suffering with strangles. Has maxillary abscesses containing characteristic discharge. The animal remains dull, off her food now and then, with little colicky pains. Her most favorite position is to be fully stretched out as in the act of micturition. Mesenteric abscess is diagnosed and various treatments prescribed. Soon the animal becomes worse, is much emaciated. Symptoms are more marked. Complete anorexia, violent colics. When lying down the forelegs are kept extended in front of the body. She is groaning, has eructations. When standing the forelegs are kept well apart. Pulse and respiration remained normal. Temperature varied between 102 and 106 Far. Ruptured stomach is diagnosed. Death takes place. Post mortem. Thoracic organs normal, abdomen contains three gallons of fluid. Peritoneum of large and floating colons inflamed in patches. Sternal flexure of large colon adherent to ensiform cartilage. Third part of the colon adherent to abdominal wall. Stomach ruptured six inches in length. Mucous of the small intestines inflamed. Large abscess in the colic mesentery. It weighed 10 pounds, its walls are 3 inches thick and it contains about half a pint of pus with a stinking odor. Several colic mesenteric glands are enlarged. Abscesses were found in the pelvis of both kidneys. Other organs normal.—(*Veterinary Journal.*)

INGUINAL HERNIA OF A GRAVID UTERUS IN A BITCH [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—Wire-haired, black and tan bitch has on the right side a hernia of one horn of the uterus containing a single large-sized fœtus. She was seven weeks gone in pregnancy. As she is to be operated, the owner states that he does not wish her to breed again; it was decided to remove the entire uterus and, if it could be done, through one in-

cision. After all necessary precautions, the hernial sac was opened quite freely to allow the passage of the distended uterine horn. This was isolated by ligatures first and removed. The left horn was then secured and as it did not contain any foetus was easily brought out drawing the uterus which was then ligated and removed. Some large veins had to be secured. A large lot of omentum had also to be excised. The peritoneal layer of the hernial sac was separated from the outer layer, ligated as far as possible near the external inguinal ring and cut; the stump being returned in the abdomen. The external ring was sutured with silk, the skin also, and sealed with flexible collodion and a little iodoform. In fifteen days the slut was well without having missed a single meal from the time she had been operated.—(*Veterinary Journal*.)

RETENTION OF URINE IN A CAT BY SPONTANEOUS LIGATURE OF THE PENIS WITH FUR [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—Persian tom cat, 4 months, has abdominal pains since several days, smelt offensively and is suspected to not pass urine. He had anxious expression of countenance, and pupils are dilated. A much distended bladder is felt and punctured through the abdominal walls. Urine appeared normal. No foreign body or calculus found. Sent home. He is again the next day in the same condition. Bladder is tapped a second time. Examining the perineum, slight purulent discharge is seen oozing from the sheath and a fine hair protruding. This is drawn out and round the penis are observed several coils of fur firmly entwined, forming ligature. This is removed and the penis badly lacerated is seen, suggesting possible subsequent stricture. Two days after the bladder is still distended, but by pressure from the abdominal wall a few drops of blood-stained urine are squeezed out. Puncture had to be resorted to several times and after a while the cat was all right.—(*Veterinary Journal*.)

PROLAPSUS OF INTUSSUSCEPTED COLON IN A PUPPY [*By the Same*].—Three months mongrel pupy has prolapsus of intestines. Thought it was the rectum. The trouble is reduced. Finger introduced in the rectum found it ballooned and the returned body could be felt. Manipulations through the abdominal walls revealed the presence of a sausage-like body similar to that found in intussusception. Dog is anesthetised, abdomen opened, no intussusception is found and the abdomen is closed. Two days later intussusception reappears. It is protruding some. Again it is reduced and the anus is closed with loose suture. On

the 5th day after laparotomy, the dog is taken home. He is returned on the ninth day. No intussusception is present, and the anal suture is taken off. The next day the trouble returns. The suture is inserted again. The dog is then kept by himself in a kennel receiving bread and milk diet and two drachms of petroleum emulsion three times a day. No more sausage-like body is discovered and after a few weeks of treatment the condition has failed to return. The extraordinary features of this case consist in the frequent occurrence and spontaneous reduction of the intussusception.—(*Ibidem.*)

RUPTURE OF THE UTERUS AND PERINEUM IN A MARE DURING PARTURITION [*J. B. Buxton.*].—Valuable mare due to foal has been straining during the night without result. She looks like a solid oblong of flesh, with only a narrow strip of daylight under her. The under surface of the abdomen at the posterior part was four and a half inches from the ground and the front part seven inches. The under surface of the thorax gradually sloped upward from seven to sixteen inches. Each teat is large enough to fill an ordinary teacup. Vaginal exploration shows that the passage is very small and in reaching the uterus it is found displaced, the head of the foetus was wedged beneath the brim of the pelvis and the foetus is struggling violently. Both fore feet of the foetus were projecting through the perineum about six inches below the vulva. Evidently there was a rupture of the uterus and as the mare shows signs of failing rapidly, with the consent of the owner, she was immediately destroyed and the foal delivered through the unnatural channel. On making a post mortem a large rent was found in the uterus, the abdomen contained a large quantity of blood-stained fluid. The intestines were much injected, the rectus abdominis muscle was ruptured at its pelvic attachment.—(*Ibidem.*)

RUPTURED ŒSOPHAGUS [*F. S. Probyn, Capt. A. V. C.*].—Interesting case of injured œsophagus, result of a kick that a nine-year-old mare received from another horse on the left side of the neck and breast. A hot and painful swelling over the lower portion of the left side of the neck was the consequence. Fever, raising of temperature, 102-4, pulse 52, hot fomentations, laxative diet, legs bandaged. No improvement took place. The swelling kept up increasing, extended to the breast and forearm. Considerable difficulty in swallowing accompanied with stiffness of the neck and disinclination to move. The breast was scarified

and about two quarts of putrid liquid escaped with mixture of pus and food materials. The diagnosis was evident. The animal was to be operated at once. Cast, anesthetised partly with morphia and cocaine, the œsophagus was exposed and showed a rupture which was closed with catgut painted over with collodion. Interrupted sutures closed the outside wound. There kept, however, an escape of fluid containing food material coming from the operated wound. This was reopened and as the stitches of the œsophagus held tight it was rightly supposed that there was another rupture further up in the neck and the case being considered as beyond treatment the animal was killed. At the autopsy a rupture 3 inches long was found in the upper portion of the œsophagus, about 4 inches from the pharynx. The rupture of the lower part of the œsophagus was progressing satisfactorily.—(*Veterinary Record*.)

FRACTURED PASTER.N.—Aged hunter working now in a mineral water van. Had been laid up two or three weeks for badly broken knees. Was doing well and sent home. Seen one morning in good condition; he was found very lame on the same evening on one of his hind legs, the off one. He was unable to stand on it and could not be moved out of his stall. On examination for the cause of this condition, a fracture of the off-hind pastern was detected. The horse was immediately killed and the bone found broken into six pieces. A few minutes before being detected lame he had apparently been perfectly well. Question: Could such condition be caused by the horse stamping hard on the ground?—(*Veterinary News*.)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

HUMERO-RADIO-CUBITAL LUXATION IN A DOG—REDUCTION—RECOVERY [*Mr. L. Auger*].—A dog, aged 18 months, is thrown from a carriage. He walks on three legs, the right fore carried forward, does not rest on the ground. It is not vertical. The forearm forms with the arm a very obtuse angle opened outward. On the external face of the elbow joint, on a

level with the lower end of the humerus is observed a depression which does not exist on the sound leg and is accompanied with a projection formed by the radius. Inside of the elbow, an inverse condition is observed on palpation, above there is a projection due to the internal edge of the humeral trochlea and below a depression on a level with the superior extremity of the forearm. It is perfectly clear that the radius is pushed outward and the diagnosis is evident: Luxation outward of the elbow.

The animal is anesthised. When the muscular resolution is obtained, extension and contra extension are made by assistants pulling moderately in opposite direction and by manipulations of the articulation, coaptation is obtained and manifested by the characteristic clapping which always accompany such result. The luxation having returned when an attempt was made to flex the leg, a silicated bandage was applied and left on for about two weeks. When it was removed, the reduction was perfect, but the animal was still lame and did not put weight on his leg. However, little by little this condition improved and recovery was perfect in six weeks.—(*Journal de Zootech.*)

INOCULATION OF BACTERIDIAN ANTHRAX—LONG INCUBATION [*Mr. H. de Chavanges*].—Called to make a post mortem of a cow that had dièd suddenly, the author was told that death had taken place because the cow could not deliver her calf. Indeed, through the vulva bulged out portion of the placenta and the legs of the fœtus. However, the autopsy had to be made. A globular mass, blackish in the centre, infiltrated with citrine serosity, was noticed in the pharyngeal region. Other similar lesions were also observed along the neck to the entrance of the chest. These were evident lesions of bacteridian anthrax and the condition of the heart and spleen left no doubt as to the diagnosis. The hand of the operator was the seat of superficial scratches, he washed it in water of doubtful cleanliness and could not get a thorough washing with soap and Phenicated water until later on. This was too late. The hand became painful, but no attention given to it, and six days after the author went and delivered another cow. Thirteen days after this last cow died with anthrax inoculated by the diseased condition of the man's hand, which required severe treatment to be controlled. From six to eight days of incubation for the man and from thirteen to fifteen for the cow are certainly unusually long periods of incubation which are worth recording. (*Progres Veterin.*)

OSTEO-SARCOMA OF THE TESTICULAR REGION, WITH GENERALIZATION IN A STEER, CASTRATED WITH DOUBLE SUB-CUTANEOUS TORSION METHOD [*Daille and Sabatti*].—Nine-year-old steer presents an enormous neoplastic mass, weighing 10 kilograms, irregularly bosselated and adherent to the skin of the scrotum.

This tumor involves the entire lower part of both spermatic cords and has all round a few isolated nodules varying in size from that of an ordinary nut to that of a man's fist. The lumbo-aortic lymphatic glands are infiltrated with identical neoplastic tissues. The lungs are containing numerous secondary nodules, situated in the thickness of the parenchymatous tissue, or immediately under the pleura. On this serous, there are disseminated nodules giving it the aspect of tuberculous lesions. The initial tumor and all the secondary growths have similar macroscopic characters. They are very hard and when cut with a saw they have the appearance of a spongy tissue. Histologically they are osteoid sarcoma or Osteo-Sarcoma. The carcass of the animal which had been killed for the butcher, was put away and not allowed to be used for general consummation. All generalized tumors impose the destruction of the entire carcass by the meat inspector.—(*Revue Veter.*)

DEATH OF TWO CRYPTORCHIDS, SEVERAL WEEKS AFTER BEING OPERATED [*Mr. Filiatre*].—1. A fifteen months colt, affected with left cryptorchidy, was operated. The day of the operation he was in apparent perfect health and nothing indicated in his general condition that he was the carrier of internal lesions which would cause death in a short time. Operated and placed under ordinary special regime; two days after he was noticed refusing his food and had colics. His condition was alarming. Hernia was suspected, but rectal examination revealed that everything was normal in the ring. Bleeding was performed and a sedative drench prescribed, with the application of mustard under the abdomen. The next day the animal is worse. Condition remained about the same and death took place on the eighth day. Nothing wrong could be found around the seat of operation, but a large abscess of strangles surrounded the right kidney, which was floating and partly putrified and containing five liters of creamy pus.

2. Before being operated this colt, which is now eighteen months old, has always had a very large abdomen. The cryptorchidy existed on both sides and both operated at once the same

day. A few days later there is a large swelling of the sheath, hind legs, and extending to the anus. This is scarified and cauterized with deep points of firing irons. The swelling went away for a few days, but returned. The animal died. At the post mortem, there was found an hypertrophy of the liver, which weighed 80 kilograms. As suppuration was well established at the points of operation, the supposition of septicæmia was excluded. Although the author has practiced castration for years, he never has met with such conditions.—(*Rec. de Medec. Veter.*)

SPONTANEOUS RUPTURE OF THE AORTIC TRUNK IN A HORSE [*Mr. Piot-Bey*].—This was observed in a fourteen-year-old mare, of small size and in fair condition. While dragging a cart loaded with manure, one morning she goes on about 400 meters, suddenly stops, drops, tries in vain to get up and dies almost instantaneously. Rupture of a large blood vessel was suspected at once and confirmed by the post mortem. On opening the pericardium a large clot of blood was extracted. At the base of the aortic trunk there exist a rupture measuring about four centimeters and concealed, so to speak, by the pulmonary artery and the right auricle. The rupture was neat and as if made by one sudden giving away. There were positively no dissecting aneurism.—(*Rev. Gener. De Medec. Veter.*)

KILLING OF LARGE ANIMALS [*Mr. Fayet Çabassu and Moreau*].—The authors do not wish to pass a review of all the various means or instruments used to kill large animals. Those are too numerous. They only want to say a few words on that which they consider as the surest and most economical, the one which has less surprises for the operator and promotes less repulsion for those who are watching the operation. They consider principally the circumstances where a sentence of death has to be applied, say in public or in streets.

Electrocution, if applicable, would be practical.

The opening of the posterior Aorta through the rectum has been resorted to by some. But can it be done?

Chloral has also been recommended. Chloroform is useful for small subjects in tracheal injections or again through the veins. For large animals the result is too uncertain.

Sulphate of strychnia has been used by them. One gramm dissolved in 20 of tepid water and given in intra-thoracic injection has killed a horse in three minutes and thirty seconds. They have repeatedly tried the similar operation whenever called

to destroy large animals in public and the success they have obtained bring them to the conclusion that strychnia is the surest, most practical and most elegant manner to proceed.—(*Repert. de Polic. San. Veter.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF ACUTE NEPHRITIS IN A HORSE [*Dr. L. Cominotti*].—Although this affection has been the object of several descriptions, and among them those of Friedberger and Frohner, Kitt, Verheyen, Hable and others, the author has thought the history and symptomatology of his case worth recording.

Since some days this horse has shown some irregularities in his appetite and manifested great pain in micturition. He is in a fair condition, yet is dull and looks indifferent. In walking he drags his hind legs. The visible mucous membranes are pale, the pulse strong and full, 80 per minute. Respiration accelerated with nothing abnormal on percussion. Temperature 37 degrees. Under the abdomen from the sternum back there is a swelling pitting on pressure. The hind legs are swollen. The loins are very sensitive. Rectal examination is negative, as the horse rebels much against it.

After a while these symptoms are more marked. There is great thirst and the animal absorbs enormous quantity of liquids without appearing to ever have enough. The fæces are either constipated or diarrheic and fœtid. Micturation is very frequent and painful. Small quantity of urine is expelled. The quantity in one day is 2300 c. m. It is cloudy, thick, yellow-brownish in color, alkaline and contained considerable quantity of albumin. No sugar. The microscopic examination of the deposits reveals numerous granular casts and epithelial cells. The condition of the horse rapidly became aggravated and he died after a few days.

At the post mortem the kidneys were found rather enlarged, of normal consistency. Their capsules was readily taken off. The external appearance was rosy-brownish in aspect. Some echymotic spots were found in the cortical substance. The pelvis of the kidneys contained mucilaginous matter white-yellowish in

color. The bladder contained some dense, yellow-reddish urine. The mucous membrane was slightly congested. The microscopic examination revealed the true lesions of acute nephritis.—(*La Clinica Veter.*)

DIPHTEROID VAGINITIS IN A COW [*Dr. G. Sparapani*].—This animal is six years old. The history is that she has been in calf, that her gestation had presented nothing abnormal; but that her delivery had been very difficult and required the assistance of an empiric of great fame in the neighborhood.

When examined, she has the appearance of an animal suffering with acute vaginitis, abundant flow from the vulva, with unpleasant odor and of a greyish color with striæ of blood. The animal did not seem to have any pain except that she had shown before some difficulty in micturating and in passing her fæces. The temperature was 41°5. The pulse 75 to 80. Examination of the vagina shows that the mucous membrane is covered with false membranes, greyish and strongly adherent. Attempts to remove small patches of those was followed with minute local hemorrhage. There were also small diphtheroid ulcerations.

The bacteriologic and microscopic examinations revealed their nature and the presence of the typical bacillus of necrosis.

Remembering the descriptions of Moussu, as well as those of McFadyean, Jensen and others, the author arrived to conclusions that were readily confirmed of the nature of the trouble. Washings with saturated solutions of salicylic acid and a bolus of sulphate of quinine formed the whole treatment.—(*La Clinica Veter.*)

“GOLA DI LUPO” PALATINE FISSURE, DUE TO MECHANICAL CAUSE [*Dr. Ottorino Mancinelli*].—This is the Italian name that the author gives to the condition that he found in the mouth of a sheep which, when he drank, had a large quantity of the liquid returned through the nostrils mixed with blood. At first he suspected the case to be one of foot and mouth disease, and prescribed a mild treatment of chlorate of potash and milk. A few days later he found the animal in about the same condition, but with greater irritation and infiltration of the mucous membrane. The escape of the same saliva was also present. A more thorough examination of the parts made with a speculum showed an extensive wound of the hard palate, which was on the median raphe of the mucous membrane loose and separated from the soft tissues. The animal was killed.—(*Il Nuovo Ercolani*.)

TUMEFACATION OF THE FRÆNUM LINGUÆ, DUE TO MECHANICAL CAUSE [*By the Same*].—A four-year-old steer is found one morning with the tongue swollen and protruding from the mouth. There is an abundant discharge of saliva and rumination has stopped. The animal cannot even take liquids. He is much prostrated, and carries his head low down. The swelling of the tongue extends to the commissure of the lips and the mouth is quite congested, specially in the region of the frænum, where the swelling is as big as a middle-sized orange. The tongue is rather indurated in its anterior portion. A free incision is made with a lancette on each side of the tumor and by pressure a great quantity of serosity mixed with blood was squeezed out. Gradually everything assumed its normal appearance. It is probable that there had been some obstruction of the ducts of the sublingual glands, and that this was the cause of the peculiar condition following.—(*Il Nuovo Ercol.*)

SUFFOCATION BY TONSILITIS [*By the Same*].—Female goat of three years old had refused her food since a few days and she salivates abundantly. She is rather feverish and makes now and then efforts to urinate or drop her fœces. After a few days of an ordinary treatment with chlorate of potash she is rather improved, takes a little drink, yet she has fever and her voice has become cavernous and hoarse. Attempts were made to examine the back part of her mouth, but she struggled so much that it was imperfect, and only the inflammatory condition could be detected. The condition grew worse rapidly and finally death took place without a positive diagnosis being made.

At the post mortem the only principal lesions were in the throat. The whole region was considerably inflamed and the seat of severe tonsilitis. The amygdalæ were three times their normal size and had undoubtedly been the cause of the suffocation by interfering with the air passages.—(*Ibidem.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

ARE TUBERCLE BACILLI PRESENT IN THE MUSCLE TISSUE AND IN THE APPARENTLY HEALTHY LYMPH GLANDS OF TUBERCULAR ANIMALS? [*Dr. Johannes Swierstra*].—In the course of

his experiments regarding the infectiousness of the meat and apparently healthy lymph glands of tuberculous animals, Swierstra employed guinea pigs, rabbits, goats, pigs and a calf. These animals received subcutaneous and intraperitoneal injections of muscle juice. Seventeen experiments proved negative. The following table is compiled from the positive results:

A.—Cattle.

Experiment No. IV.—An emaciated cow with extensive tubercular lesions. The muscle juice was virulent.

Experiment No. V.—A cow with extensive tuberculosis of the serous membranes, in addition to necrotic tubercles; she was extremely emaciated. The muscle juice was virulent.

Experiment No. VII.—Tubercular cow in which the tubercles showed extreme softening. The lymph juice was virulent.

Experiment No. XV.—Cow affected with acute miliary tuberculosis of the lungs and extremely emaciated. The muscle juice was virulent.

Experiment No. XXI.—Cow affected with acute miliary tuberculosis of the lungs and somewhat emaciated. The muscle juice was virulent.

Experiment No. XXIII.—Cow with purulent necrotic tubercles in the lungs. The lymph juice was virulent.

Experiment No. XXV.—Cow affected with osteo-tuberculosis and a softened nodule in the lung. Lymph juice virulent.

B.—Swine.

Experiment No. II.—Hog affected with chronic generalized tuberculosis in which both submaxillary and retropharyngeal glands were very much enlarged and contained necrotic foci. The muscle juice proved virulent.

Experiment No. XIV.—Hog affected with chronic generalized tuberculosis and extremely emaciated. The muscle juice was virulent.

As a result of the foregoing experiments the following conditions must be taken into consideration in judging the virulence of the meat of tuberculous animals:

1st. Whether acute miliary tuberculosis is present, and, if so, it must be borne in mind that acute miliary tuberculosis of the lungs can lead to the condemnation of the meat.

2d. Whether the tubercular nodules are necrotic.

3d. Whether the tuberculous animal is emaciated.

4th. Whether osteo-tuberculosis is present.

When Swierstra, in the course of his experiments, speaks of necrotic tubercles he refers to those nodules which, when incised, are found to contain pus. Here we have to deal with a mixed infection of staphylococci and streptococci. We note the latter chiefly in broncho-pneumonia, and as a result several embolic nodules form in various organs. These nodules vary in age and we can readily understand how the blood is becoming continually more or less infected. Therefore we need not be alarmed when we find emaciation existing in connection with this necrotic tubercular condition. As has been proven by experiment No. 5, it is not essential that the body lymph glands should be affected in each case. According to the experiments of Swierstra, in many cases virulent tubercle bacilli were found in the meat and apparently healthy lymph glands of tuberculous animals. Swierstra explains the negative results obtained by Westenhoeffers and Hoefnagels in their experiments as due to the small quantities of meat introduced subcutaneously and as a consequence too few bacilli being transmitted to the experiment animals. The results of Swierstra's investigations cover the entire field which the German meat inspection regulations provide regarding the judging of the meat of tubercular animals and with which he entirely agrees. He also recommends the sterilization of the meat of tubercular animals in the following instances:

1st. In all cases of tuberculosis which has lead to extreme emaciation.

2d. In tuberculosis with extremely softened nodules.

3d. In tuberculosis with indications of a fresh haematogenic infection, even if the lungs only are acutely affected.

4th. In tuberculosis in which the bones are the seat of diseased processes.

With regard to the latter, Ostertag justly remarked that this is not well founded, as cow No. 25, affected with tuberculosis of the bone, also had necrotic nodules in the lung. Regarding the infectiousness of the macroscopically unchanged lymph gland Swierstra emphasizes the fact that when softening of the tubercle took place the juice was already infectious, notwithstanding only one tubercular nodule was present. This demonstrates the fact that the infection of the blood was of short duration and that the tubercle bacilli stored up in the body lymph glands had scarcely time to lead to the formation of tubercular nodules.—(*Zeitschrift für Fleisch und Milch-hygiene*, 17 bd., S. 37.)

LOCAL TETANUS AND ITS ORIGIN [*Staff Surgeon C. Pochhammer*].—Localized tetanus at the point where infection takes place (wounds, seat of inoculation), usually precedes generalized tetanus in animal experimentation. In the human subject and in the larger domestic animals this is rarely observed. The author has endeavored by experimental procedure to solve the problem whether it is possible to explain the origin of the local tetanic spasms through the fact only of the absorption of the tetanus toxine by the peripheral nerve fibres. Summarizing as follows: The local muscular spasms in tetanus depend not upon an intoxication of the central nervous system, nor upon a direct effect of the tetanus poison on the muscles (Zuipinck), but rather upon an intoxication of the peripheral nerves. The tetanus toxine is not conducted to the axis cylinder processes of the peripheral nerves, but is deposited and confined in the substance of the medullary sheath of the nerve fibres (chemical affinity), the tetanic spasms arise from an interruption in the insulation between the sensory and motor nerve fibres in the mixed peripheral nerve tracts as a result of changes in the medullary substance caused by the tetanus toxine. The substance of the medullary sheath acts antitoxically on the circulating blood (Lipoides). The origin of the antitoxine and also explanatory of the immunizing action of the brain pulp (Experiments of Wasserman and Fakaki). After the tetanic symptoms have appeared no beneficial results are to be expected from the antitoxine treatment. The value of serum-therapy in general depends on prophylaxis.—(*Deutsche Medecin. Wochenschrift*, 34 Jahrg., 1908, No. 16, Sect. 685.)

THE TREATMENT OF NERVOUS DISTEMPER OF THE DOG [*Vet. J. Wohlmuth, Vienna*].—Wohlmuth recommends as treatment in the nervous forms of distemper in dogs, Levico arsenical water. According to his experience this water given in large doses acts as a specific for this disease, arrests its progress and in the majority of cases results in complete recovery. The Levico arsenical water is prepared for use in strong and weak solutions. Wohlmuth prescribes the strong preparation only. During the first week dogs are given two tablespoonfuls three times daily, diluted with milk, the second week three tablespoonfuls three times daily. In general the dose is to be computed according to the severity of the case at hand, the age and constitution of the patient. Bromide preparations and other varieties are to be absolutely avoided. Wohlmuth further remarks that good results may be obtained

from the use of Levico arsenical water in the treatment of *brust-seuche* of the horse, also in influenza and petechial fever (*Lier-ärztliches Centralblatt*, No. 31, 1907).

WITH REFERENCE TO THE PRESENCE OF TUBERCLE BACILLI IN MILK SAMPLES AND THE PRESERVATION OF SUCH SAMPLES SENT FOR EXAMINATION WITH 5 PER CENT. BORACIC ACID ADDED [*Dr. Gustav Kuhn*].—Besides the clinical examination of the udders of milch cows for the detection of tubercular lesions, we have the bacteriological examination of the milk to aid us. It has been said that samples of milk sent by dealers and others to the bacteriological laboratories had soured rapidly in warm weather and consequently could not be examined satisfactorily. In order to avoid this rapid fermentive change Rübiger advises the addition of boracic acid to the milk samples in the proportion of 5 per cent., after which the microscopical examination can be conducted without hindrance. On the other hand it was questionable whether the milk so treated was still suitable for the inoculation of experiment animals or whether the tubercle bacilli were rendered less virulent by the addition of the preservative. In order to elucidate this question Kuhn undertook a series of experiments, the results of which are as follows:

First—That an addition of 5 per cent. boracic acid, whether in the form of a powder or solution, suffices to preserve the milk from souring for at least 15 days.

Second—That through the addition of this agent the virulence of the bacteria contained in the milk was not appreciably influenced.—(*Zeitschrift für Infektionskrank., parasitickrank, und Hygiene d. Haustiere*, Bd. II, S. 58.)

A RARE FORM OF TUBERCULOSIS IN SWINE, AFFECTING THE ADIPOSE TISSUES [*Dr. Jos. Böhm, Nürnberg*].—Böhm observed in a hog, the fat of which was being trimmed from the carcass for rendering into lard, tricules about the size of a millet seed to a pea (subcutaneous lymph glands?) in six different parts of the panniculus adiposus in the region of the shoulders and back, the bacteriological examination of which revealed the presence of tubercle bacilli. In addition Böhm had observed repeatedly in cattle and swine tuberculosis in one or more body lymph glands without visible lesions in the spleen or kidneys. Also extensive miliary tuberculosis of the pia mater in a heifer. In this case only, both bronchial lymph glands were affected to quite a degree,

while the posterior mediastinal glands and pleura were involved to a lesser extent.—(*Zeitschrift für fleisch und Milchhygiene*, XVII, S. 311.)

CONCERNING SOME GROWTHS RESEMBLING NODULES ON THE PERITONEUMS OF CATTLE [*Dr. Pietro Stazzi*].—Not infrequently we find in horses tufted connective tissue growths on the peritoneum, whose origin Kitt ascribes to the irritating action of animal parasites which have gained entrance to the abdominal cavity. At the post mortem examination held on some cattle (aged about ten months), which were employed in the Behring's Jennerization experiments at Mantara, the author found in the peritoneum, besides these growths already mentioned, others in the form of small non-pediced nodules. Those formed singly or in groups on the parietal and visceral folds of the peritoneum and varied in size from a flax seed to a lentil. Numerous submiliary nodules were found, particularly on the omentums of these cattle. As this condition naturally lead to the suspicion of miliary tuberculosis, the modules were thoroughly examined histologically and bacteriologically, but no proof of the presence of tubercle bacteria could be determined. In the centre the nodules consisted of a thick layer of leucocytes together with a few cells of the connective tissue type, and on the periphery a thin layer of similar tissue, vascular and rich in fibrillæ and with few round cells, which were scattered in the subserous connective tissues.

These new formations had a homogenous translucent appearance, others again had lost this property through transformation of their central portion into connective tissue. In the granulation tissue many nodules were alveolar or cone-shaped, which were lined with cubical or cylindrical cells. Although the nodules in question are similar to epi or endothelioma in their initial stage, the author believes that their origin is due to a chronic inflammatory process and agreeing with Kitt that these connective tissue formations are the result of parasitic irritation (*Berliner Tier Wochenschrift*, No. 3, 1907).

CONCERNING A NEW ELEMENT IN MILK [*A. Kindl and Neumann*].—As a result of the investigations carried on by Kindl and Neumann, they found in the milk of the cow, cat, dog, guinea pig and rabbit an ultra-microscopical body which possessed decided molecular movement. Its nature is yet unknown. The authors termed it Laktokonien. It is not present in human milk.—(*Vorläufige Mittheilung, Wiener Klinik Wochenschrift*, 1907, S. 214.)

APPENDICITIS AN INFECTIOUS DISEASE [*Emil Haim*].—Haim maintains that appendicitis is an infectious disease sui generis, as it closely resembles the other infectious diseases in all its features. The cause is probably due to the *Bacillus coli communis*; the pus producers staphylococci, streptococci, pneumococci, in rare cases, the influenza, typhoid and tubercle bacilli. With these various organisms it is possible to produce well-defined symptoms of the disease having a characteristic course, progress and termination. The author has been able to produce a disease in experiment animals (rabbits) by injections of various species of bacteria in the ligated appendix, which bears a close resemblance to the same disease in man. The manner in which infection takes place is as follows: The pathogenic bacteria present in the intestines succeed in gaining the appendix and there produce an inflammation. In angina especially, or where bacteria are localized in the body, this factor plays an important part, as the organisms are swallowed or find their way into the appendix through the blood. As is the case with other infectious diseases, appendicitis appears at times epidemically.—(*Prague Med. Wochenschrift*, 1907, S. 453.)

INTRAPERITONEAL INJECTIONS OF CHLORAL HYDRATE IN THE TREATMENT OF SEVERE COLICS IN THE HORSE [*Dr. Breton*].—In treating severe colics various indications have to be taken into consideration, particularly to obviate the occurrence of internal hemorrhages, to combat the atonic condition of the digestive tract and principally to alleviate pain, for in relieving the latter the animal is quieted and many complications are avoided, such as ruptures and torsions of the intestines. In order to produce insensibility to pain the author uses intraperitoneal injections of chloral hydrate in very severe cases of colic. The narcoma which is rapidly induced lasts from three to four hours, during which time the pulse and respiration regulate themselves, and when the injection is properly given and aseptic precautions taken throughout, it is absolutely without risk.

The dose is 1 grain to 10 kg. bodyweight, dissolved in 10 grains of distilled water, and the solution must be made directly before using. For the injection one may use a serum injection apparatus (but preferably that invented by Casper). The operation is performed at the usual seat, anterior to the external angle of the illeum on the left side. Care must be taken to disinfect the part thoroughly previous to the operation. If a tympanitic

condition be present the gas must be allowed to escape by puncturing the caecum. The author describes five cases cured after bleeding, and an injection of 0.06 grms. pilocarpine and 0.03 grms. eserine, and an intraperitoneal injection of from 30 to 50 grms. chloral hydrate. The chloral hydrate should not be given systematically in all attacks of colic, but only in very severe cases in which the pain is intense.

The action of chloride of barium and other oleaginous purgatives is not influenced in the least by the chloral hydrate injections. When the stimulating alkaloids, pilocarpine and arecoline are administered before the chloral hydrate injection their action on the intestines is null. They shorten the duration of the narcoma by rapidly eliminating the anæsthetic. If we wish to excite intestinal peristalsis during narcosis we should use instead the chloride of barium.—(*Berliner Tier. Wochenschrift*, No. 6, Fol. 6, '08.)

AFTER the meeting of the M. V. M. A., held in Portland, the members were invited to a luncheon at the splendid residence of Dr. W. S. Lord, after which the members visited Dr. Westcott's hospital, and returned home by late Pullman.

THOSE who were at the banquet of the A. V. M. A., at Cleveland, in 1905, will regret to learn of the sad intelligence of the death of Dr. Charles J. Aldrich, the noted alienist and neurologist, who was our guest on that auspicious occasion. Many will remember Dr. Aldrich's able and scholarly discourse made in response to the toast, "The Field of Medicine," which was listened to with rapt attention, and that our lamented editor, the late Dr. Roscoe R. Bell, sat beside him at the banquet board.

CHANGES IN THE FACULTY OF THE NEW YORK-AMERICAN VETERINARY COLLEGE.—Prof. William J. Coates, M.D., D.V.S., has been elected Dean of the New York-American Veterinary College and his distinguished predecessor, Professor Liautard, Emeritus Dean. Dr. H. D. Gill succeeds Dr. Coates as Secretary of the Faculty, while W. Reid Blair, D.V.S., succeeds Edward K. Dunham, M.D., as Professor of Comparative Pathology and Pathological Histology, and Dr. Harry D. Hanson, the late Dr. Roscoe R. Bell, as Professor of Materia Medica and Therapeutics.

CIVIL SERVICE EXAMINATION.

VETERINARIAN.

The United States Civil Service Commission announces an examination on September 16, 1908, at places mentioned in a list printed by the Commission, to secure eligibles from which to make certification to fill a vacancy in the position of veterinarian, at \$1,200 per annum, Quartermaster's Department at Large, Philippine Islands, and vacancies requiring similar qualifications as they may occur in the Philippine Islands.

The appointee will be expected to serve for not less than two years, unless his services are sooner dispensed with for the convenience of the Government. Salary will begin on the date he takes oath of office in San Francisco, and transportation will be furnished from San Francisco to the Philippine Islands. If he remains in the employ of the Government for two years, or if he is sooner discharged for no fault of his own, he will be given return transportation and subsistence to the United States and will be paid his salary to the date of his arrival in the United States.

As the Commission has experienced considerable difficulty in securing sufficient eligibles to meet the needs of the service in this position, qualified persons are urged to enter this examination.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subject.	Weights.
1. Letter writing	10
2. Veterinary anatomy and physiology	20
3. Veterinary pathology	20
4. Veterinary practice	40
5. Training and experience	10
Total	100

Applications will be accepted only from persons who have been graduated from reputable veterinary colleges.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

LEGISLATION IN CANADA.

Comparatively little original legislation affecting agriculture, or concerning the veterinary profession, was enacted at the last session of the Dominion Parliament, but some very important amendments to existing acts were made. Amendments reported as follows in the *Farmer's Advocate*, of August 5th, Winnipeg, are of especial interest to the veterinary profession:

The Meat and Canned-foods Act, enacted in 1907, and put into operation under the supervision of the Veterinary Director-General, was amended in two particulars. Under the original measure only such packing plants as were declared by the Minister as coming within the operation of the act were inspected. Under the amendment all plants already under the operation of the act remain under it, and, in addition, all other packers come under its control until exempted by Order-in-Council. That is to say, no packing or canning plant is allowed to ship food products out of the province in which they are located unless according to the regulation governing the act.

Heretofore only twenty-eight plants were under inspection, which made it difficult for the Department to control the common carriers in regard to export transportation. Under the amendment hundreds of factories, including all not exempted, will be subject to inspection. This greatly simplifies the control of transportation companies, which are not allowed to carry from one province to another the products of meat packing plants, unless bearing the "Canada Approved" stamp.

The second amendment has reference to the labels permitted to be used on canned goods. The original measure provided that the package must bear the name and address of the packer or packing firm putting up the goods. Under the amendment the privilege of labelling is extended to the first dealer obtaining the goods from the packer who sells or offers the same for sale. It is provided, however, that such dealer must, on request of the Government inspector, give the name of the packer of such article. This amendment was the result of appeals from extensive firms, who have built up reputations for certain brands of goods that may have been put up by many small packing concerns in a locality who utilize identical products and put them up by a uniform process.

Previous to the operation of the Meat and Canned Foods Act, the canned foods trade came under the supervision of the Department of Inland Revenue. The amendment here referred to is in effect a total repeal of the old measure.

Appropriations.

For the administration of the Health of Animals Branch, \$300,000 is made available. This is \$50,000 less than last year. The reduction is the result of a less call for indemnities—for slaughtered glandered horses, the disease being stamped out in many sections where it heretofore prevailed. For the enforcement of the Meat and Canned Foods Act, \$120,000 is voted. This is \$45,000 greater than last year's vote. The vote for the Live Stock Branch has been increased from \$45,000 in 1907 to \$65,000 this year. The increased appropriation is for the general work of the branch, including the Record of Performance for pure bred dairy cows, the development of the sheep industry, and the publication of an increased number of bulletins and reports.

SOCIETY MEETINGS.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

SEPTEMBER 21—OCTOBER 12.

SECTION VII.

TUBERCULOSIS IN ANIMALS AND ITS RELATIONS TO MAN.

President—Dr. Leonard Pearson, Philadelphia. Vice-Presidents—Dr. Langdon Frothingham, Boston; Dr. Joseph Hughes, Chicago; Dr. Marion Dorset, Washington; Dr. B. Meade Bolton, Washington; Dr. James Law, Ithaca, N. Y.; Dr. A. D. Melvin, Washington; Dr. Veranus Moore, Ithaca, N. Y.; Dr. A. Peters, Jamaica Plain, Mass.; Dr. M. P. Ravenel, Madison, Wis.; Prof. H. L. Russell, Madison, Wis.; Dr. D. E. Salmon, Montevideo, Uruguay; Dr. E. C. Schroeder, Washington; Dr. Theobald Smith, Boston; Dr. C. W. Stiles, Washington; Dr. A. R. Ward, Berkeley, Cal. Secretary—Dr. John R. Mohler, Washington, D. C.

PROVISIONAL PROGRAM.

Outline of Topics for Section VII.

A. *Prevalence of Tuberculosis*—Among domestic animals, the relation of tuberculosis to the animal industries, economic importance of this disease.

B. *The Modes of Infection*—Portals of entry, influences favoring infection, relation of methods of husbandry to the prevalence of tuberculosis in animals.

C. *The Diagnosis of Tuberculosis in Animals*—Physical examination, bacteriological examinations of tissues, secretions and excretions; serum reactions; tuberculin tests, systemic and local reactions.

D. *Resistance to Tuberculosis*—As shown by genera, species, breeds, families and individuals; the conditions that influence natural resistance; artificial immunity, extent, duration, vaccination against tuberculosis, methods, results and practical application.

E. *Methods for Controlling Tuberculosis in Animals*—Methods applicable in heavily and in lightly infested herds and districts; results of operations in different countries and in the various states of the United States.

F. *The Comparative Bacteriology and Pathology of Tuberculosis in Animals*—The inter-relationships of tuberculosis in animals of different species.

G. *The Relation of Tuberculosis in Animals to the Public Health*—The evidence for and against the transmission of tuberculosis from animals to man; infection of man from animals by association, inoculation, feeding of meat and milk.

H. *Milk Hygiene*—Its relation to tuberculosis in animals; methods that may be adopted to prevent the milk supply.

I. *Meat Hygiene*—Its relation to tuberculosis in animals; guiding principles and rules by which the meat inspector should be governed in adjudging the carcasses of animals infected with tuberculosis.

S. Arloing, Lyons, France.—Rapports des Tuberculoses Humaine et Bovine.

Geo. F. Baker, San Francisco, Cal.—Tuberculosis Among Range Cattle in California.

A. W. Biting, Purdue University.—The Infection of Swine from Tuberculous Cattle.

W. Reid Blair, New York.—Tuberculosis in Wild Animals.

C. A. Cary, Agricultural College, Alabama.—The Dissemination of Tuberculosis in Domestic Animals in the Southern States.

J. W. Conaway, University of Missouri.—The Enlistment of the Educational Forces of the State in the Suppression of Tuberculosis of Animals.

W. H. Dalrymple, Agricultural College of Louisiana; Chas. F. Dawson, State College Newark, Del.—The Oculo-tuberculin Reaction in Cattle.

R. R. Dinwiddie, Experiment Station, Ark.—The Susceptibility of Cattle to the Virus of Surgical Forms of Human Tuberculosis.

George B. Jobson, Franklin, Pa.—The Tuberculin Test of Cattle in Its Relation to Public Health.

L. A. Klein, Harrisburg, Pa.; M. E. Knowles, Helena, Mont.; C. J. Marshall, Philadelphia, Pa.; J. R. Mohler, Washington, D. C.—Tuberculosis Among Cattle on the Open Range.

A. D. Melvin, Department of Agriculture, Washington, D. C.—The Economic Importance of Tuberculosis of Food-producing Animals.

V. A. Moore, Cornell University.—The Value of Tuberculin in the Control of Tuberculosis in Herds.

A. B. Nelson, State College, Washington.—A Study of the Results of the Continuing Injection of Tuberculin upon Tuberculous Cattle.

Otto G. Noack, Reading, Pa.—Meat and Dairy Herd Inspection as Preventive Measures Against the Spread of Tuberculosis Among Cattle.

Leonard Pearson, Philadelphia, Pa.; Austin Peters, Boston, Mass.—Lessons from the Experience of Massachusetts in the Control of Tuberculosis of Cattle.

A. T. Peters, University of Nebraska.—The Relation of Tuberculosis of Swine in Tuberculous Herds.

Jesse E. Pope, Orange, N. J.—Tuberculosis of Cattle from the Farmer's Standpoint.

M. P. Ravenel, University of Wisconsin; M. H. Reynolds, University of Wisconsin; J. G. Rutherford, Ottawa, Canada; Dr. Salazar, Havana, Cuba.—The Control of Bovine Tuberculosis.

E. C. Schroeder, Department of Agriculture, Washington, D. C.—An Observation Relative to the Economic Eradication of Cattle Tuberculosis.

S. Stewart—The Pathology of Tuberculosis of Swine.

Dr. Kinsley, Kansas City, Mo.; A. R. Ward, University of California, and C. M. Haring, University of California.—Prevalence of Tuberculosis Among Dairy Cattle near San Francisco, Cal.

A. S. Wheeler, Biltmore, N. C.—The Bang Method for Controlling Tuberculosis of Cattle.

D. S. White, University of Ohio.—The Oculo-tuberculin Test for Tuberculosis in Bovine Animals.

JOINT SESSION.

Papers to be Read at the Joint Session of Section I. and VII. on Wednesday Afternoon, September 30.

S. Arloing, Lyons.—Rapport de la Tuberculose Bovine et Humaine.

Theobald Smith, Boston.—The Question of the Transformability of the Human and the Bovine Types of the Tubercle Bacillus.

J. Fibiger and C. O. Jensen, Copenhagen.—Human and Bovine Tuberculosis and the Tubercle Bacillus.

Dr. Lewis, Boston.—The Types of Tubercle Bacillus isolated from cases of Tuberculosis of the Cervical Glands in Human Beings.

R. M. Dinwiddie, Experiment Station, Ark.—The Susceptibility of Cattle to the Virus of Surgical Forms of Human Tuberculosis.

M. P. Ravenel, Madison, Wis.—Title to be announced.

Lydia Rabinowitsch-Kemperer, Berlin.—Title to be announced.

J. N. Davalos and J. Cartaya, Havana.—Comparative Study of Tubercle Bacilli of Human and Bovine Origin.

TITLES OF PAPERS FOR SECTION I.

Dr. WILLIAM H. WELCH, President.

Milton J. Rosenau, Washington, D. C.—“The viability of the tubercle bacillus.”

Victor C. Vaughan, Ann Arbor, Mich.—“A study of the proteids of the tubercle bacillus.”

John Weinzerl, Seattle, Wash.—“The action of diffuse light upon bacillus tuberculosis.”

Dwight M. Lewis, New Haven, Conn.—“The morphology of the tubercle bacillus.”

S. Arloing and Paul Courmont, Lyons, France.—“Nouvelles Cultures Homogenes des bacilles de la Tuberculose.”

J. N. Davalos and J. Cartaya, Havana, Cuba.—“Comparative study of the tubercle bacillus of human and of bovine origin.”

A. Rodet, Montpellier, France.—“La Virulence du bacille dans ses rapports avec l'évolution clinique de la tuberculose pulmonaire.”

A. Parker Hitchens, Glen Olden, Pa.—“A chamber in which dried tubercle bacilli may be handled without danger.”

N. Ph. Tendeloo, Leyden, Holland.—“Channels of infection.”

Julius Bartel, Vienna, Austria.—“Über Eintrittspforten der Tuberkulose.”

G. Kuss, Agincourt, France.—“Sources et voies d'infection de la contagion tuberculeuse.”

S. Bernheim, Paris.—“Les portes d'entree de la tuberculose.”

S. Bernheim, Paris.—“Rapports de l'air avec la contagion tuberculeuse. Sterilization de l'air.”

Alfred F. Hess, New York.—“A study of the tuberculous contamination of New York City milk.”

Jules Courmont and A. Lesieur, Lyons, France.—“Inoculation transcutanee de la tuberculose.”

Julius Bartel, Vienna—"Immunisirungsversuche gegen Tuberkulose."

Jules Courmont and A. Lesieur, Lyons—"Contribution a l'immunité dans la tuberculose."

A. B. Marfan, Paris—"Immunité de l'homme pour la tuberculose."

Y. Ishigami, Osaka, Japan—"Tuberculo-toxoidin and immunisation serum."

Eugene L. Opie, New York—"The part of enzymes tuberculous lesions."

Aldred S. Warthin, Ann Arbor, Mich.—"The frequency of healed tuberculosis of the mesenteric glands, with particular reference to the relationship between hyaline deposits in these glands and the healing of tuberculous lesions."

S. Arloing, Lyons, France—"De l'infection tuberculeuse d'après le criterium anatomo-pathologique."

John McCrea, Montreal, Canada—"Analysis of 1,000 consecutive autopsies in Montreal with reference to the incidence of tuberculosis in the different organs."

A. R. Landry, Montreal, Canada—"Incident of chronic pleurisy in 1,400 autopsies in Montreal, and its relationship to tuberculosis."

Leon Barnard, Paris—"Etude anatomique et pathologique des lésions non-folliculaires de la tuberculose."

R. Tripier, Lyons—"De la pneumonie dans le processus de la tuberculose pulmonaire."

J. Paviot, Lyons—"Processus anatomique de l'hémorragie la tuberculose au début."

Joseph Walsh and C. M. Montgomery, Philadelphia—"The kidneys in tuberculosis of the lungs."

D. J. McCarthy, Philadelphia—"Tuberculosis of the spinal meninges, with a consideration of the mode of infection of these structures."

J. T. Ullom, Philadelphia—"The liver in tuberculosis."

Walter Altschul, Prague, Austria—"Zur pathologie der Peritoneal-tuberkulose."

Charles Esmonet, Puy de Dom—"De la tuberculose expérimentale du testicule."

O. Amrein, Arosa, Switzerland—"Periostitis et adipositis tuberculosa toxica multiplex."

Paul Courmont, Lyons—"Proprietes humorales des exsudants tuberculeux, valeur, pronostique et therapeutique."

Camillo Calleja, Valladolid, Spain.

Alfred C. Crofton, Chicago—"An experimental and clinical study of the calcium metabolism in tuberculosis."

LIST OF SPECIAL LECTURES.

In connection with the Congress a series of special lectures will be delivered in Washington and elsewhere by eminent foreigners. The names of the speakers and the cities in which they will lecture follow.

Bernard Bang, of Copenhagen. Washington, October 3—Subject: "Studies in Tuberculosis in Domestic Animals and what we may learn regarding Human Tuberculosis."

A. Calmette, of Lille, France. Philadelphia, September 26—Subject: "Les nouveaux procedes de diagnostic precoce de la Tuberculosis."

Emil Coni, of Buenos Ayres. Washington, October 2—Subject: "La Lucha contra Tuberculosis en la Republica Argentina."

Arthur Newsholme, of Brighton. Washington, September 29—Subject: "The causes which have led to the past decline in the death rate from tuberculosis and the light thrown by this history on the preventive action for the future."

Gothold Pannwitz, of Berlin. Philadelphia, September 24—Subject: "Social Life and Tuberculosis."

R. W. Philip, Edinburgh. Boston, October 6—Subject: "The Anti-tuberculosis Programme Co-ordination of Preventive Measures."

C. H. Spronck, of Utrecht. Boston, October 7.

Andres Martinez Vargas, of Barcelona. New York, October 9—Subject: "Tuberculosis of the Heart, Blood and Lymph Vessels."

Theodore Williams, of London. Philadelphia, September 25—Subject: "The Evolution of the Treatment of Pulmonary Tuberculosis."

Dr. Maurice Letulle and M. Augustin Rey (joint lecture). Washington, September 30—Subject: "La Lutte Contra la tuberculose dans les grandes villes par l'habitation; methodes scientifiques modernes pour sa construction."

Dr. L. Landowzy, of Paris. Baltimore, October 5.

Dr. A. A. Wladimiroff, of St. Petersburg. Washington, September 28—Subject: "Biology of the Bacillus."

Prof. N. Ph. Tendeloo, of Leiden. Subject, "Collateral Tuberculosis Inflammation."

INTER-STATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.

The twelfth annual meeting of the above association convenes at the Hotel Raleigh, Washington, D. C., on September 14, 15 and 16, 1908.

This meeting occurring in the week between the meeting of the American Veterinary Medical Association, in Philadelphia, and the International Congress of Tuberculosis, in Washington, affords veterinarians who wish to attend the Congress of Tuberculosis an opportunity to make good use of the intervening time, and should be largely attended.

This association meets annually, and practically every State having a Live Stock Sanitary Board or a State Veterinarian is represented at these meetings.

At the date of this writing, we have secured the following program, and expect a few more papers of importance on Sanitary Control Work.

Progress of Tick Eradication, Dr. Tait Butler, North Carolina.

Control of Hog Cholera, Dr. A. D. Melvin, Washington, D. C.

The Importance of Prophylaxis in Sanitary Control Work, Dr. J. G. Ferneyhough, Virginia.

Control of Tuberculosis, Dr. A. D. Melvin, Washington, D. C.

Ways and Means of Eradicating Tuberculosis in Domestic Animals, Dr. O. E. Dyson, Illinois.

Federal, State and City Co-operation in the Eradication of Tuberculosis, Dr. D. F. Luckey, Missouri.

State Meat Inspection, Dr. J. M. Wright, Illinois.

Things to be avoided in passing laws governing Meat and Milk Inspection, Dr. M. E. Knowles, Montana.

Glanders, Dr. S. H. Ward, Minnesota.

Discussion, Dr. J. M. Wright, Illinois.

Three Diseases of Animals which have Recently Assumed Importance to the State Sanitarian, Dr. John R. Mohler, Washington, D. C.

Veterinary Sanitary Laws in the State of Washington, Dr. S. B. Nelson, Washington.

Five minute talks on sanitary conditions in the various states.

Members of the American Veterinary Medical Association, all visiting veterinarians, and all others interested in sanitary control work, are cordially invited to attend and to take part in the discussions.

CHAS. E. COTTON,
Secretary and Treasurer.

ASSOCIATION OF VETERINARY FACULTIES AND EXAMINING BOARDS OF NORTH AMERICA.

OFFICERS.

President—Dr. Joseph Hughes, Chicago, Ill.

First Vice-President—Dr. S. Stewart, Kansas City, Mo.

Second Vice-President—Dr. Wm. Herbert Lowe, Paterson, N. J.

Secretary-Treasurer—Dr. Tait Butler, Raleigh, N. C.

CONFERENCE COMMITTEE.

Dr. S. Stewart, Chairman.

Representing State Colleges—Dr. Leonard Pearson, Chairman, Philadelphia, Pa.; Dr. J. H. McNeil, Ames, Ia.; Dr. V. A. Moore, Ithaca, N. Y.

Representing Private Colleges—Dr. S. Stewart, Chairman, Kansas City, Mo.; Dr. Geo. H. Roberts, Indianapolis, Ind.; Dr. Roscoe R. Bell, Brooklyn, N. Y.

Representing Examining Boards—Dr. M. H. Reynolds, Chairman, St. Anthony Park, St. Paul, Minn.; Dr. Thomas Bland, Waterbury, Conn.; Dr. R. A. Archibald, Oakland, Cal.

Representing American Veterinary Medical Association—Dr. G. W. Dunphy, Chairman, Detroit, Mich.; Dr. Geo. H. Berns, Brooklyn, N. Y.; Dr. E. H. Shepard, Cleveland, O.

PROGRAM.

Monday, September 7, 1908. Hotel Walton, Philadelphia, Pa., 4.00 o'clock P. M.

1. Meeting called to order by President, Dr. Joseph Hughes.
 2. Reading of Minutes of Last Meeting.
 3. President's Address, by Dr. Joseph Hughes.
 4. Report of Secretary-Treasurer.
 5. Report of Standing Conference Committee, Dr. S. Stewart, Chairman.
 6. Report of Subcommittee Representing State Colleges, Dr. Leonard Pearson, Chairman.
 7. Report of Subcommittee Representing Private Colleges, Dr. S. Stewart, Chairman.
 8. Report of Subcommittee Representing Examining Boards, Dr. M. H. Reynolds, Chairman.
 9. Report of Subcommittee Representing The American Veterinary Medical Association, Dr. G. W. Dunphy, Chairman.
 10. Discussion of the Reports of above committees and the Report of the Committee on Veterinary Education Appointed by the United States Secretary of Agriculture.
 11. New Business.
 12. Election of Officers.
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MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of the above association was held at the Preeble House, Portland, Me., July 8, 1908. President Murch was in the chair, and Dr. C. W. Purcell acted as secretary pro tem., as Dr. Joly was attending a meeting of the State Board of Veterinary Examiners, in an adjoining room.

Members present—Drs. Murch, Purcell, Westcott, Lord, Watson, Pope, Potter, Spear, Stevens and Joly.

Visitors—Hon. John M. Deering, of the Cattle Commission, and veterinarians Robinson, Dow, Russell and Mebane.

Dr. Murch read a paper on the treatment of wounds, and Dr. Spear one on "Meat Inspection." Both papers were very interesting and brought general discussion.

Dr. Westcott was elected representative to the A. V. M. A. meeting at Philadelphia, in September. The application of Dr. Lynch was referred to the next meeting.

The following applications were received and referred to the executive committee: Drs. E. E. Russel, of New Sharon; W. L. Mebane, Bangor; Thos. Dow, of Perham, and W. H. Robinson, of Portland.

Drs. Purcell and Watson were appointed to prepare papers for the next meeting, which will take place in October, at Waterville.

A. JOLY,
Secretary.

SOUTH DAKOTA STATE VETERINARY MEDICAL ASSOCIATION.

We held our meeting in the college building at Brookings, South Dakota, July 2-3, 1908. There was a large attendance. Nine new members were elected. We are working hard to get a veterinary law in this state. Drs. J. A. Graham, Thos. H. Hicks and C. McDowell were appointed a Committee on Legislation. A number of very interesting papers were read. The second day was devoted to clinic and surgical operations. Election of officers resulted as follows: President, Dr. C. McDowell, Watertown; first vice-president, Dr. L. P. Brewster, Vermillion; second vice-president, Dr. T. H. Ruth, Desmit; secretary and treasurer, Dr. J. A. Graham, Sioux Falls.

The next meeting will be held at Sioux Falls the second Tuesday in July, 1909.

J. A. GRAHAM, *Secretary.*

THE BIRD'S SUPERIOR EYE.—The sight of birds is extraordinary, and the simple fact that the eye of a hawk and a pigeon is larger than their whole brain gives some idea of what their powers of sight must be and of how easily they can fly hundreds of miles if they have marks to guide them. Very little attention has yet been given by eye surgeons to the eye of the bird and other animals, from which so much is to be learned.—(*London Mail.*)

NEWS AND ITEMS.

Dr. L. E. WHEAT, M.D., V.S., died in Philadelphia, Pa., on the 12th ult.

THERE are few wild beasts more to be dreaded than a talking man having nothing to say.—(*Swift*)

MISSOURI'S quarantine against southern cattle fever has been amended to conform strictly with the federal regulations.

Dr. C. W. CROWLEY, of St. Louis, Mo., recently made Professor Liautard a very pleasant visit at the latter's summer home at Draveil, France.

MRS. W. H. DALRYMPLE and children have been occupying a summer cottage this season on Sodus Bay, in the western part of New York State.

Dr. A. JOLY, Waterville, Me., Secretary of the Maine Veterinary Medical Association, is a candidate on the Republican ticket for Representative.

THE handsome features of Dr. T. Earle Budd grace one of the illustrations of the recent Atlantic City Horse Show in *The Rider and Driver* of August 1.

E. B. ACKERMAN, D. V. S., and E. J. Robbins, D. V. S., officiated in the capacity of veterinary inspectors at the Bay Shore Horse Show, Long Island, N. Y., August 6-8.

THROUGH the efforts of Dr. M. E. Knowles, Montana State Veterinarian, and Dr. W. P. Mills, of that State, a Montana association of Berkshire breeders has been organized.

BONY.—David Harum: That wuz a pretty good horse old Ez wuz drivin,' eh? Eben Holden: Yes, he had so many good points you could use him for a hat rack.—(*Pennsylvania Punch Bowl*.)

Dr. N. RECTENWALD, chief city veterinarian of Pittsburgh, Pa., suffers from a transverse fracture of the right patella which occurred June 7th last. He is making a favorable but slow recovery.

WHERE IT BELONGED.—Old Gent: Neat race, that, sonny! That black horse of Sheedy's is a dandy. But who does that little brown bobtail belong to? Boy: That belongs to the little brown horse, sir.

Dr. TOWNSEND, inspector in charge of the federal meat inspection service at Paterson, N. J., has been transferred to Milwaukee, Wis., and Dr. Waller, of the New York office, takes charge at Paterson.

APOTHECARY'S WEIGHT.—“I'm sure,” whispered the gossip, “that Mr. Pillsbury, the druggist, takes a dram occasionally.”

“Yes,” replied the bright girl, “I believe he has no scruples in that direction.”—(*Philadelphia Press*.)

JAMES C. MCNEIL, V.M.D., a member of the Pennsylvania State Board of Veterinary Medical Examiners, has been appointed Dairy Inspector of the City of Pittsburgh at an annual salary of \$1,800 and all traveling expenses.

Dr. JOHN H. MCNEIL, dean of the Veterinary Division of the Iowa State College, Ames, has accepted the chair of Veterinary Surgery and Obstetrics in the College of Veterinary Medicine, Ohio State University, made vacant by the resignation of Dr. Udall.

PRESIDENT DALRYMPLE has invited Mr. Nikola Kaumanns, Imperial German Agricultural Attache to this country, to address the forthcoming meeting of the A. V. M. A., at Philadelphia, on the Importance of the Veterinarian to the Live Stock Interests of his country.

Dr. W. W. DIMOCK (N. Y. State Veterinary College, '05) has resigned as first assistant in the Department of Animal Industry, Republic of Cuba, to accept the position as veterinary chief to the Superior Sanitary Board of Havana, and has been succeeded by Dr. Emelio L. Luaces (Kansas City Veterinary College '08).

Dr. B. F. KAUPP, for several years with the Kansas City Veterinary College; Dr. C. L. Barnes, of the Kansas Agricultural College; Dr. W. W. Courtwright, with the Bureau of Animal Industry, and Dr. Robert Bird, an English graduate, have all been added to the veterinary faculty of the State Agricultural College of Colorado. The Board of Control of that institution are having everything done necessary to make that school first class in every respect.

THE Board of Veterinary Examiners of the State of Maine met in Portland, July 8, 1908, and three candidates were admitted to practice, Drs. E. E. Russell, W. L. Mebane and Thos. Dow. Members of the board present, Drs. W. S. Lord, of Portland, and Dr. A. Jolly, of Waterville.

VETERINARY DEPARTMENT COLORADO AGRICULTURAL COLLEGE.—When the Investigating Committee for the United States Department of Agriculture visited Fort Collins, Colorado, to investigate the veterinary department of the state institution, it found that it was just organized, not in full running order, and had no graduates. Many of the contemplated plans in regard to laboratory facilities had not yet been carried out on account of the fact that they were making every effort to arrange and bring the course of instruction and laboratories up to the top notch. Dr. Geo. H. Glover, the energetic dean of the department, by aid of the Board of Regents and his co-workers, got busy at once. More members were added to the faculty and new equipment provided.

This faculty now has five men who are either members of or are eligible to membership in the American Veterinary Medical Association, and three lecturers who have a like qualification. The following laboratories have been equipped: Pathologic, in which pathology, parasitology, histology and laboratory diagnosis will be taught. A room is provided for a museum which is under this department; this museum at the present time has 140 specimens. Botanic, in which botany will be taught. Bacteriologic, in which bacteriology and methods of making serums and vaccines will be given; this is in connection with the Experiment Station. Zoologic, in which will be taught zoology and embryology. The zoologic laboratory building is a new stone structure, well-equipped and containing a large museum of rare specimens. Chemic, in which organic, inorganic and physiologic chemistry will be taught. The chemistry building is a large one devoted to this subject alone. Pharmaceutic, in which pharmacy will be taught. Anatomic, in which dissection of the horse, ox and dog will be conducted, also autopsy. A physiologic laboratory in which to teach laboratory physiology is being fitted up. A hospital for large and small animals. Three lecture rooms exclusively for veterinary classes.

As there is no medical department at this college, the teaching will be all purely comparative. Colorado people are determined to have a veterinary department of high standing and none to excel it.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 8, 9, 10 & 11.	Philadelphia..	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	Jan. 14, 1909....	Trenton.....	W. Herbert Lowe, Paterson.
Connecticut V. M. Ass'n.....	New Haven ..	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept. 2, 3, 4, 1908.	Utica.....	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.....	Dec. 16, 1908....	Reading.....	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Call of Chair.....	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	R. P. Marsteller, College Sta.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n.....	October.....	Waterville....	A. Joly, Waterville.
Central Canada V. Ass'n.....	Ottawa.....	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	Feb. 2-3, 1909....	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1909.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	Galesburg.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	Centralia.....	Frank Hockman, Louisville.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	Raleigh.....	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	January, 1909....	Columbus.....	Sidney D. Myers, Wilmington
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	St. Joseph.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	Jan. 14, 1909....	Rochester.....	J. H. Taylor, Henrietta.
Iowa Veterinary Ass'n.....	H. C. Simpson, Denison.
Minnesota State V. M. Ass'n.....	Duluth.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	Sept. 8.....	Philadelphia..	F. H. Schneider, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	Denver.....	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	Omaha.....	B. F. Kaupp, Fort Collins, Colo.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence...	T. E. Robinson, Westerly.
North Dakota V. M. Ass'n.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	2d Wed. in Aug.	Alameda.....	C. M. Haring, U. C., Berkeley
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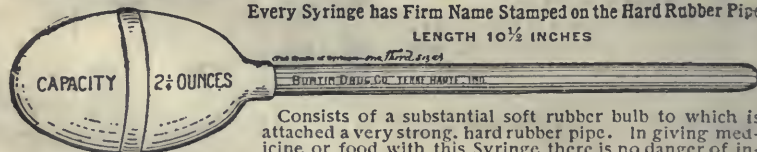
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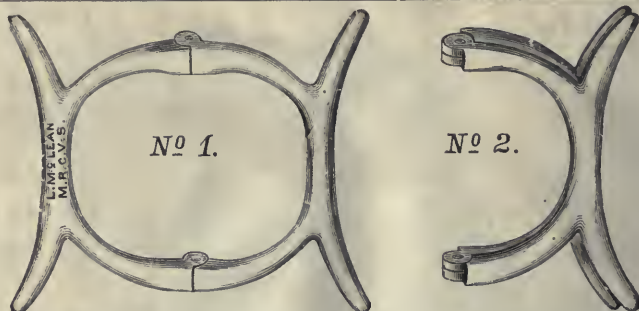
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